

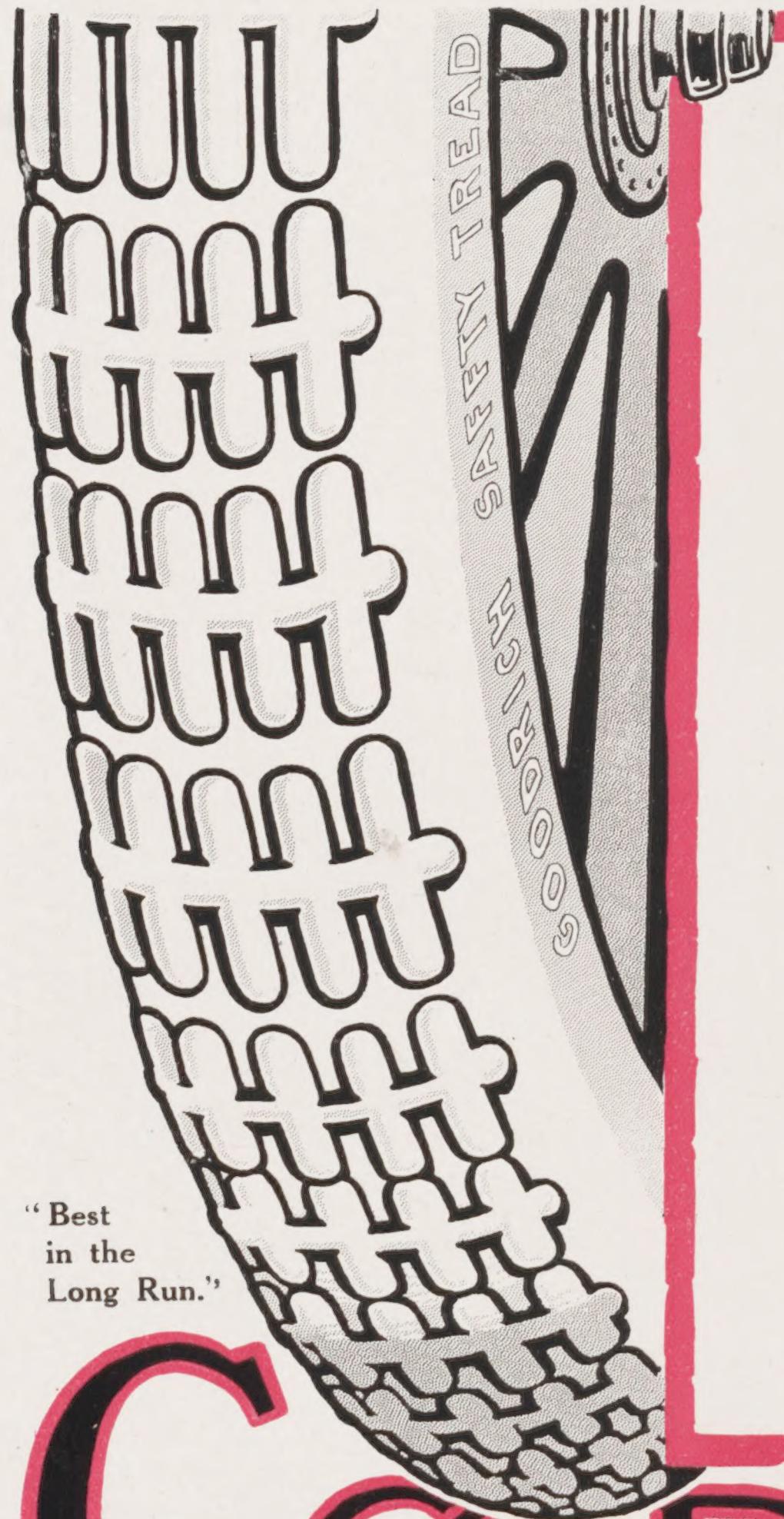
OCTOBER, 1919

The MOTOR OWNER



PUBLISHED
MONTHLY
PRICE ONE
SHILLING

October
1919



"Best
in the
Long Run."

Safety – Mileage – and Economy

THESE are the three great essentials of motor tyre service. And these are the outstanding features of *Goodrich* Safety Tread Tyres. Every tyre that leaves the *Goodrich* factory fulfils these claims under the worst conditions.

Safety is secured by the famous *Goodrich* Safety Tread. The five fingers of 'live' rubber grip the solid road right down through the surface grease. Skidding is therefore almost an impossibility.

Economy is secured by the unique quality of *Goodrich* rubber which wears slowly and evenly. Its toughness and durability have been proved by thousands of motorists who keep records of their tyre service. And the resiliency of *Goodrich* rubber makes for comfortable riding on the roughest surfaces.

Fit a *Goodrich* Safety Tread Tyre on one wheel of your car and compare its service with that of your other tyres. You will be surprised at the reduction in your running costs, and the increased pleasure you get from your riding.

GOODRICH Safety Tread Tyres

THE B. F. GOODRICH CO. LTD., 117-123 GOLDEN LANE, LONDON, E.C.1



The
DUCO (Patent)
 GREASE
 TIGHT
 LEAF SPRING GAITER

Fits neatly over the springs, encasing them loosely yet securely, maintaining between each leaf a constant film of grease. "DUCO" Gaiters keep the grease IN and the wet and dirt OUT, and the car rides with velvety smoothness over the roughest of roads.

The "DUCO" Gaiter is not a mere spring cover; it poultices the spring with grease, and is perfectly grease-tight. As the spring rebounds to the inequalities of the road, the grease circulates between the leaves and each leaf slides easily upon its neighbour.

"DUCO" Spring Gaiters make every car delightfully comfortable to ride in and to drive.

BROWN BROTHERS LTD
 LONDON, MANCHESTER & PARIS

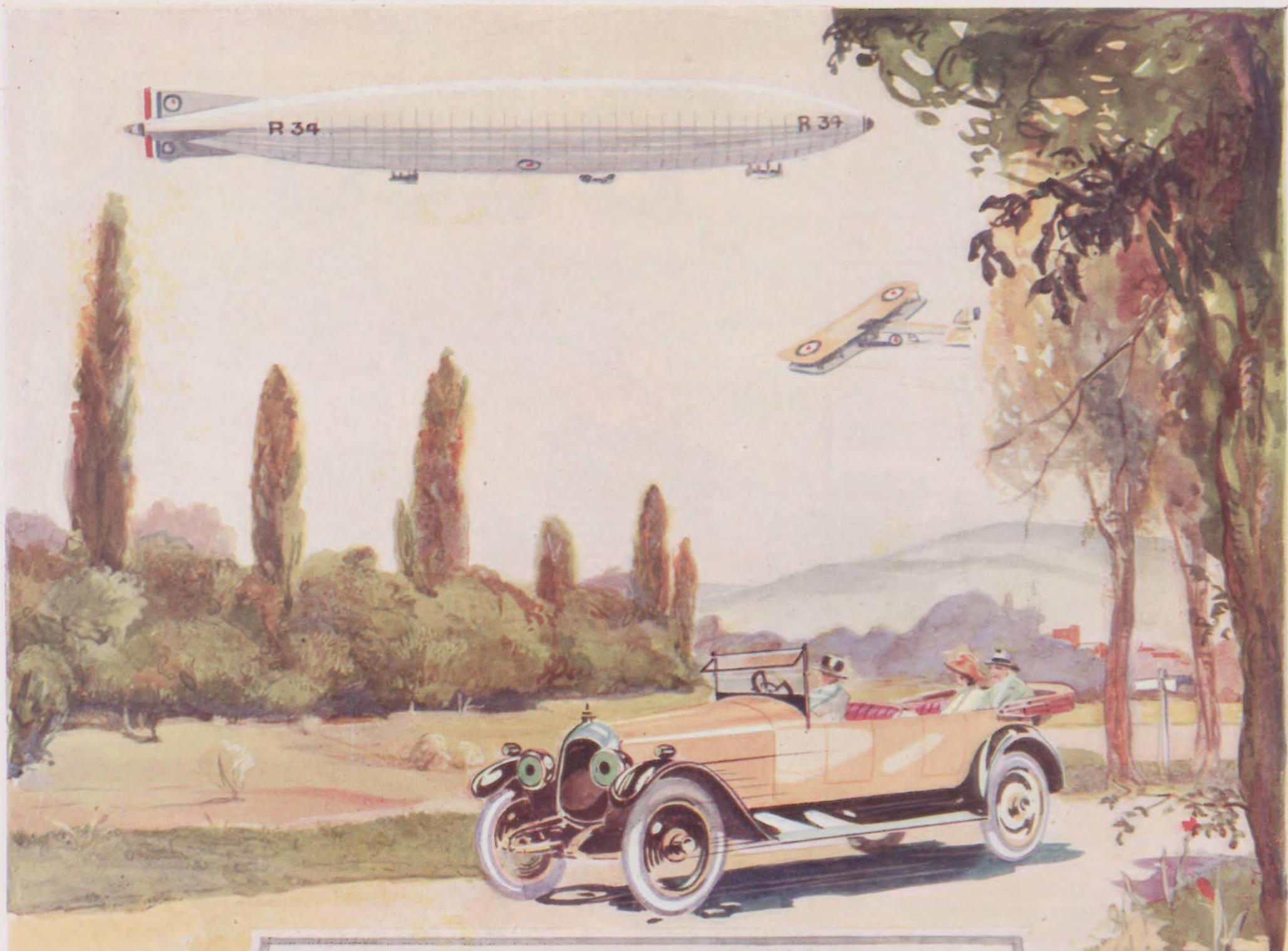
The Editor of THE FIELD says:—

"It is no exaggeration to say that these fitments not merely indefinitely prolong the life of the spring of a car, but they preserve the pristine excellence of the suspension to the last."

OBtainable from all garages
and motor dealers

Price from **10/6** Each

Write for the "Duco" Booklet and simple measurement form
to Dept. 14, Great Eastern Street, London, E.C.2



The First London to Madrid non-stop flight

made by an aeroplane fitted with Napier Engine and
B.T.H. Magnetos was completed in 7-3/4 hours.

From the moment of leaving Acton to the landing in Madrid, engine and magnetos functioned perfectly, and never caused the pilots to have a single moment of anxiety.

The British Thomson-Houston
Co., Ltd.
Lower Ford St., Coventry, Eng.

Member of the British
Ignition Apparatus
Association.



By Appointment



to H.M. the King

Daimler

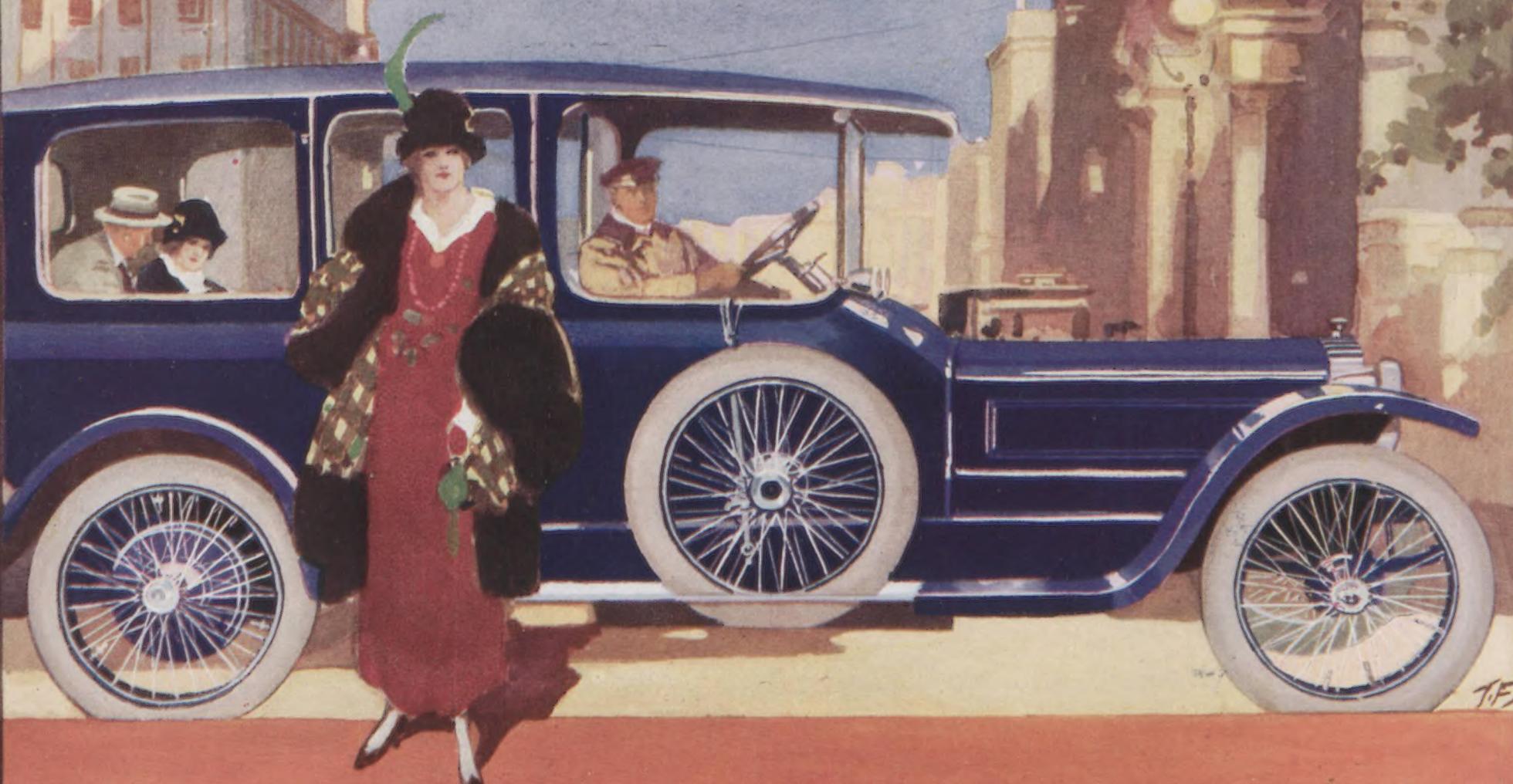
The Representative British Car

30 h.p. and 45 h.p.
6 Cylinders.

The Daimler Company Ltd

Daimler Works
Coventry :

27 Pall Mall
London S.W.





"ERIC CAMPBELL"

Southend Speed Trials

2 Gold and
1 Silver Medal

*Sutton Coldfield Hill Climb
(Unlimited Horse Power)*

Second Fastest
Silver Medal

Mutton Hill

*First Car to climb this 1 in
4 gradient over a mile long*

*Nailsworth Ladder
A perfectly clean ascent*

ERIC, CAMPBELL & CO.,

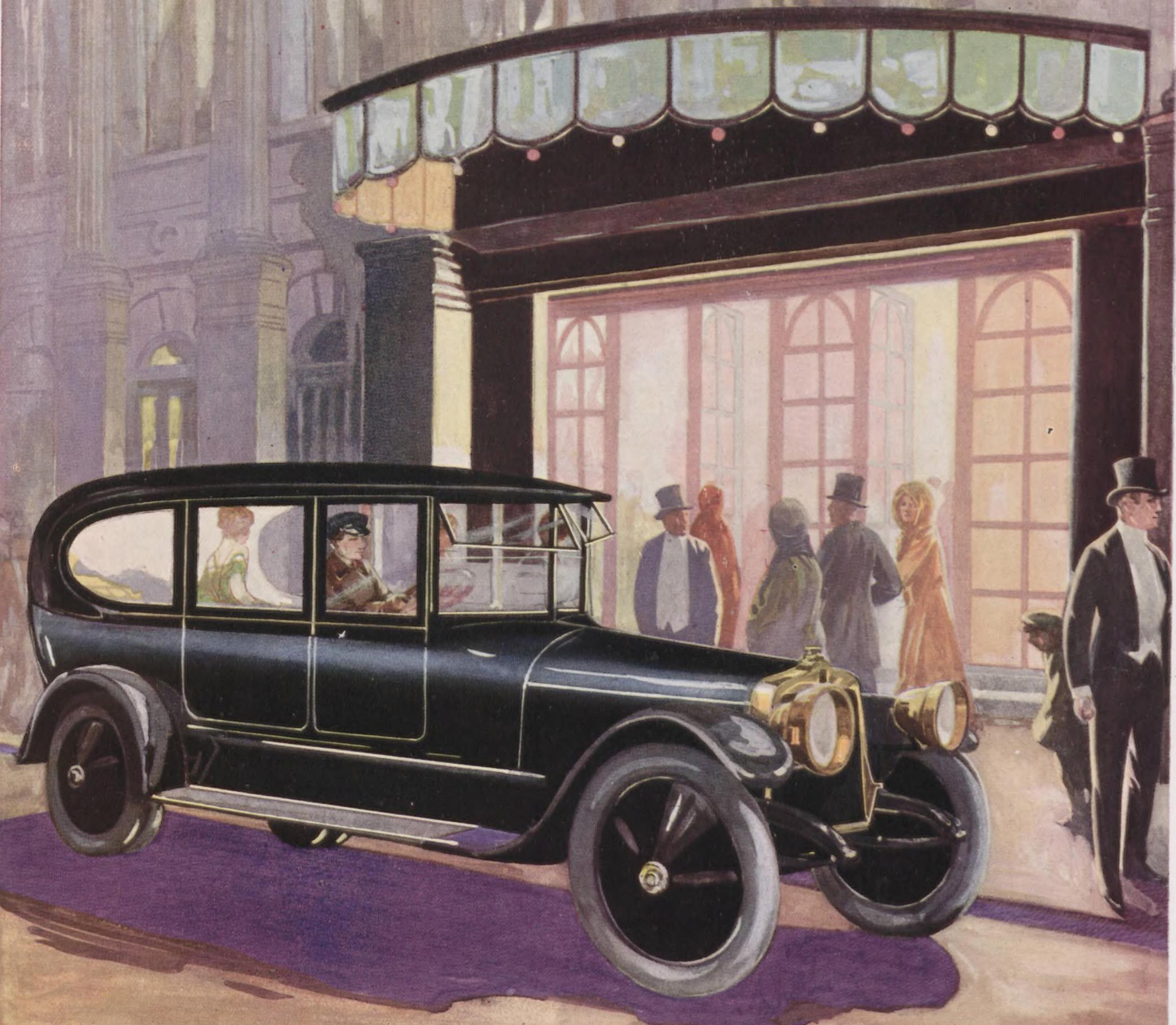
16, GLOUCESTER ROAD, S.W.7.

Telephone : 4032 Kensington.

Steerwood 10.

Thames Motor Coaches

AND ENGINEERING.



POINT PLEASANT WHARF - WANDSWORTH & SUNBURY-ON-THAMES.

11-12 HP. DAWSON



OVERHEAD
VALVES AND
CAMSHAFT

—
ELECTRIC
STARTING
LIGHTING
& HORN

—
HELICAL
BEVEL DRIVE

2-3 SEATER

Stand No. 23 at Olympia

THE CAR FOR
THE OWNER-DRIVER

DAWSON CAR CO., LTD. • COVENTRY

PROVISIONAL
PRICES

2-3 SEATER
£475

4-SEATER
£525
COUPÉ
£550

CABRIOLET
£600



Vauxhall
THE CAR SUPEREXCELLENT

ONWARD AND UPWARD

The car with the finest war reputation, the 25-h.p. Vauxhall has risen high. It is to rise higher yet. The top of its fame is still ahead. There must ever be other peaks to conquer, so long as fame is measured by merit.

VAUXHALL MOTORS LIMITED
Telephone (4 lines) Luton 466

LUTON, BEDFORDSHIRE
Telegrams: Carvaux, Luton

De Dion

"THE CAR THAT NEVER WEARS OUT"

1883

SPECIFICATION

14/16 h.p.—8-cylinder 1920 Model
Chassis (R. A. C. Rating 17·8)
—engine bore 60 mm., stroke
100 mm., engine, clutch and gear-
box in one unit, 3-point suspension,
De Dion Victrix Magneto, De
Dion Dynamo for self-starter and
lighting, accelerator control, plate
clutch, 4-speed gear, gate change,
semi-elliptic springs, wheel base
10 ft. 6 in., track 4 ft. 2 in., five
detachable Michelin disc wheels
and five 815×105 Michelin tyres.

Full Particulars of
New 12/14 h.p. 4-cyl.
Model on Application

Works :
WOODSIDE WORKS,
HIGH ROAD,
N. FINCHLEY, N.12.
and
9 BREWERY RD., N.7

De Dion

Bouton



Bouton

LIMITED

Showrooms :

10 GT. MARLBOROUGH ST.
REGENT STREET, W.1

Telephone : CITY 3150

Telegrams :
ANDESITE, Reg. London

SPECIFICATION

20/24 h.p.—8-cylinder 1920 Model
Chassis (R. A. C. Rating 24·3)
—engine bore 70 mm., stroke
120 mm., engine, clutch and gear-
box in one unit, 3-point suspension,
De Dion Victrix Magneto, De
Dion Dynamo for self-starter and
lighting, plate clutch, 4-speed gear,
gate change, accelerator control,
semi-elliptic springs, wheel base
11 ft. 6 in., track 4 ft. 6 in., five
detachable Michelin disc wheels
and five 880×120 Michelin tyres.

Highest Grade
English
Coachwork



FULL PARTICULARS FROM

PEARL MOTOR C^o. L^{TD} Daimler House, Cadillac Corner
219-229 Shaftesbury Avenue, W.C.2

PHONE: GERRARD 1298

Commercial Manager:

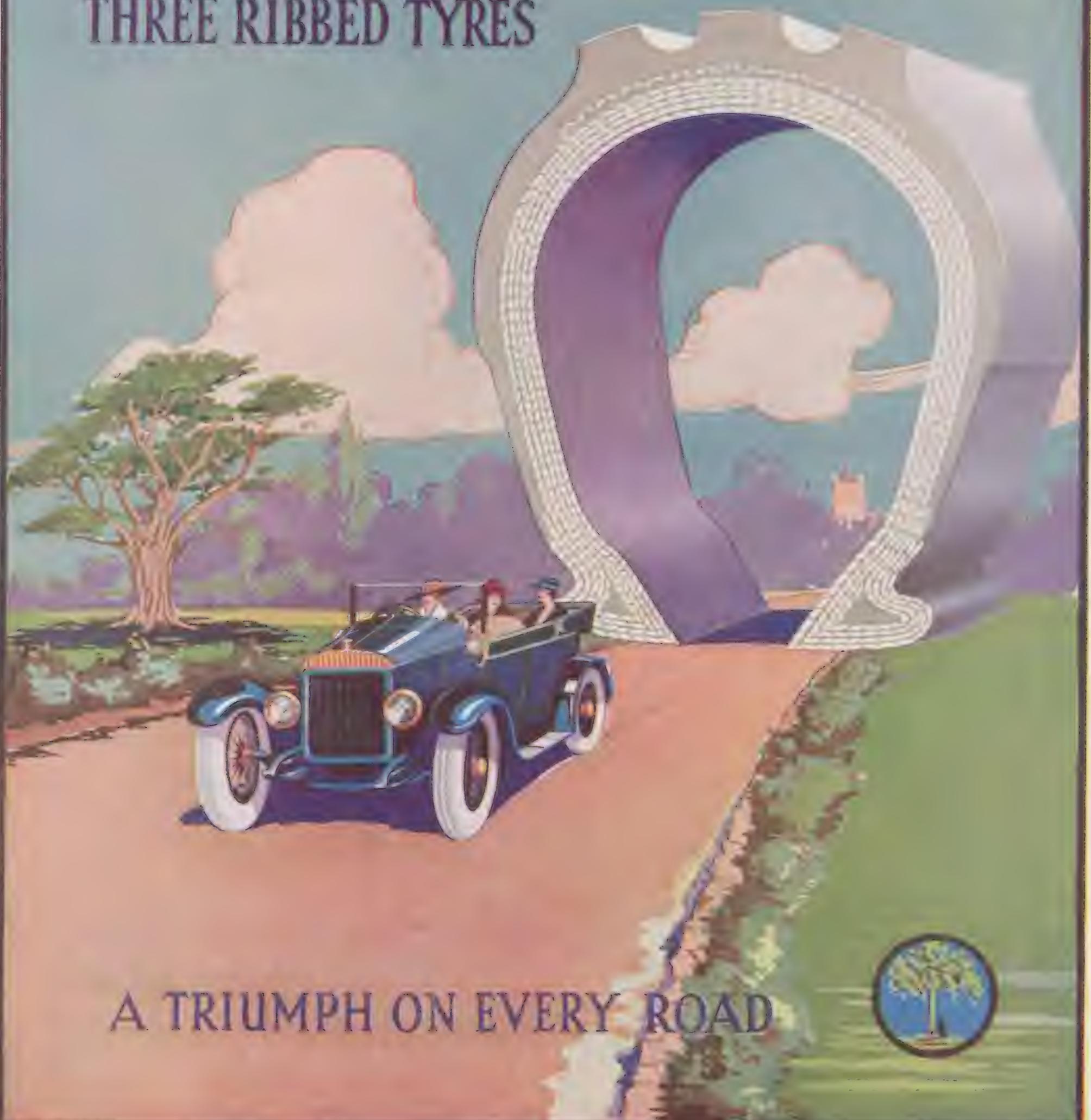
Mr. A. T. HOLSTEINSON, C.I.

Cadillac Spare Parts in Stock.

SERVICE OF OUR CARS GUARANTEED EFFICIENT
THEY ARE GREATLY IN DEMAND OWING TO HAND-
SOME AND UNIQUE DESIGN. *Photographs on application*

SPENCER-MOULTON

THREE RIBBED TYRES



SPENCER MOULTON & CO. LTD., and WOOD MILNE LTD., 42-46 Wigmore Street, W.1. Works: BRADFORD-ON-AVON, WILTS; LEYLAND, LANCS. BRISTOL, LEEDS, CARDIFF, SWANSEA, MANCHESTER, NEWCASTLE-ON-TYNE, NOTTINGHAM, GLASGOW, BELFAST, DUBLIN

20-25 h.p.
ANDERSON
6

THE 20-25 h.p. Anderson semi-sporting car is a modish roadster for two, convertible into a roomy 5-seater by simply opening the rear compartment. It solves the perplexing question: "A roadster or a touring car?" Buy the Anderson and you have both.

PRICE COMPLETE £675



347 FINCHLEY RD., LONDON,
N.W.3

Telephone: Hampstead 4631
Grams: "Aichsemoto, Swiss, London."



RAMBLERS

September is the ideal month for lingering in the open, and for spending every moment in the golden sunshine that so soon will disappear.

Rambling along the country roads, the Maxwell owner rejoices in the smooth performance, the trouble-free construction and the spacious comfort of the Maxwell Motor Car. Its electric lighting and starting equipment and its one-man hood give welcome independence, while its ease of operation results in true "pleasure-driving."

When called upon, the powerful Maxwell engine responds with a speed and endurance that have established World's Records in time and distance. The petrol economy of the Maxwell is an officially demonstrated fact.

Maxwell

For Full Particulars, write:

MAXWELL MOTOR COMPANY, LTD.

Offices & Showrooms: 116, Gt. Portland St., London, W.C.1



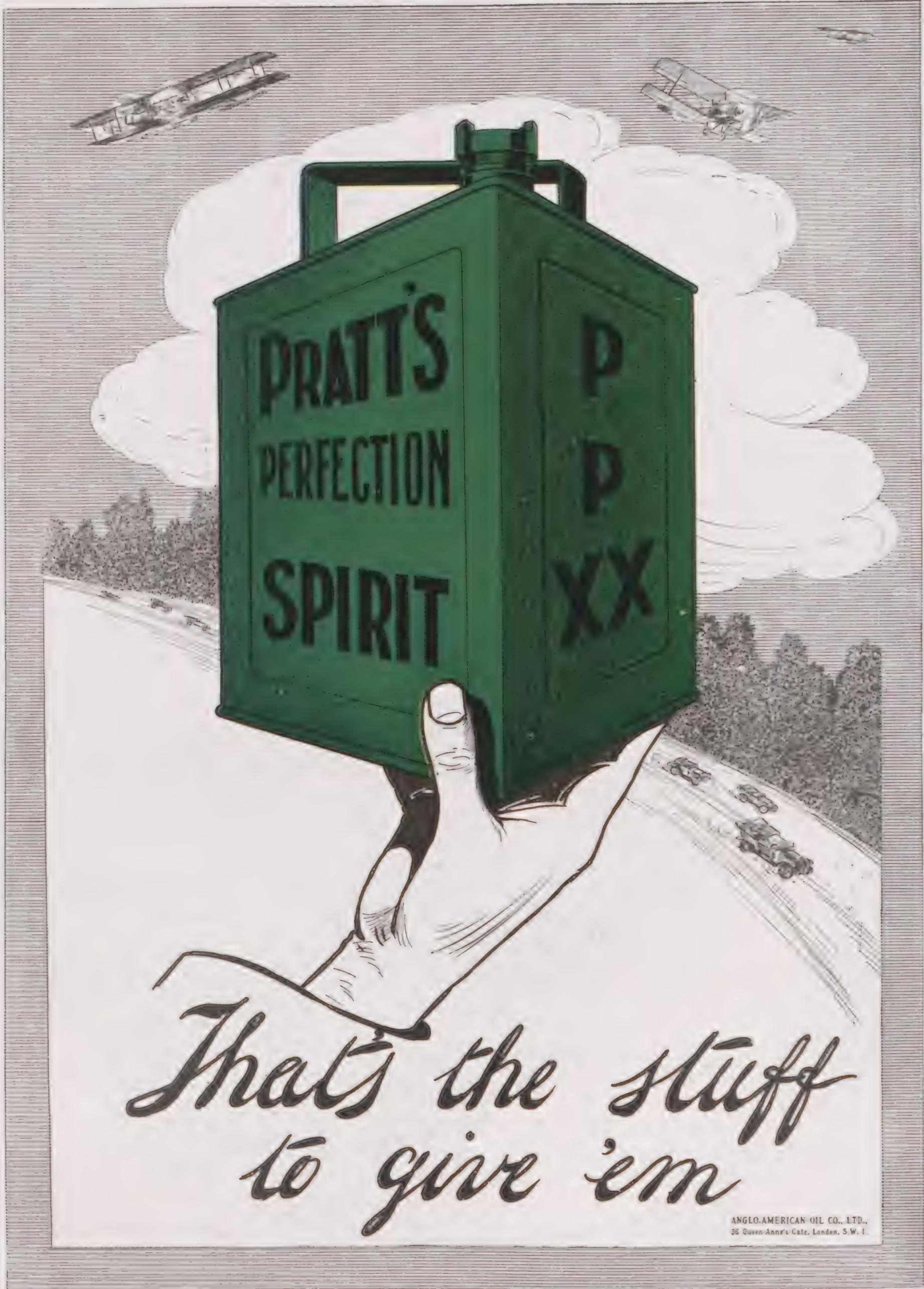
MOTOR EXHIBITION

STAND No. 100



VINOT CARS
LIMITED

147-149 GREAT PORTLAND STREET
LONDON. W.



ANGLO-AMERICAN OIL CO., LTD.,
36 Queen Anne's Gate, London, S.W. 1.

Dunhills Ltd.



ILLUSTRATED on this car are some details of equipment that make for economy in motoring.

LAMP COVERS, TYRE COVERS HOOD COVERS, SEAT COVERS are all things that protect a better article from the effects of sun, dust, or wet, and for a small outlay save pounds in a twelvemonth.

Even the little step-mat has a similar value, while a pair of dust-proof trunks are as important a touring accessory as any.

Write for estimates and particulars to :

359-361 EUSTON ROAD, LONDON, N.W.1
2 CONDUIT STREET, LONDON, W.1
72 ST. VINCENT STREET, GLASGOW



CONVERT YOUR EXISTING "FORD" INTO A NEW CAR.

THE above illustration shows one of our converted Ford Cars, and we can turn your existing "Ford" into the same luxurious automobile. There are many "Ford" owners who, while appreciating the mechanical and general excellence of the Ford chassis, desire additional comfort as far as the body is concerned. To meet this demand we have produced the above illustrated conversion set which we are confident will be greatly appreciated. The price of the conversion is exceedingly reasonable, and you will have what is to all intents and purposes a brand new car when the conversion is completed. Our demonstration car is built up purposely upon a Ford chassis which has seen considerable service as an ambulance under war conditions.

SPECIFICATION.

Ford four-seater touring body.
Adjustable front seats.
New taper bonnet.
Special domed mudguards.
Special raked steering.

Five Riley Detachable Wheels.
Electric side and tail lamps
lit from Battery.
Body painted any colour to
suit customer.
Complete conversion effected within five weeks from receipt of your car.

Rubber Pedal Covers.
One man Hood.
One-piece adjustable screen.
Petrol Tank under the Dash.
Special running boards.

Aerolite Pistons fitted to Engine.
Five sets of discs.
Head Lamps lit from Ford
Magneto.
Zenith Carburettor, (making
it possible to use Benzol).

PRICE OF CONVERSION - £195

Make an appointment and try our demonstration car. You will be astonished at the improvement in the running and comfort of the car. We are Special Agents for: A.B.C., A.C., BUICK, DODGE, HILLMAN, and LANCHESTER CARS. Any other make can be supplied. We also supply guaranteed second-hand cars or will buy your second-hand car from you.

We are always pleased to arrange deferred payments for our clients on the most favourable terms it is possible to obtain.

GEORGE ENGLAND, LTD.
AUTOMOBILE : AGENTS : AND : ENGINEERS

Head Office: HERSHAM ROAD, WALTON-ON-THAMES
ST. GEORGE'S HOUSE, 193 REGENT STREET, W.I. Phone 161
Walton on Thames
Phone: 414 Regent



THE more strenuous the country, the more exacting the conditions, the more do Palmers prove their sterling worth.

Having tremendously strong rubber-insulated cord foundations, and the toughest of rubber treads, Palmers hold world's track records. This justifies their claim to be the most durable and reliable of all tyres on the road.

PALMER

CORD TYRES

*Every Fighting and Bombing Acroplane
that left these shores was fitted with
Palmer Landing Wheels and Tyres.*

THE PALMER TYRE, LIMITED
119, 121, 123, Shaftesbury Avenue, W.C.

Cole
FOUR-SEATED
Coupé Cabriolet



The four-seated coupé is now the prevailing fashion.
The Cole carriage set the fashion ten years ago:
therefore ten years ahead of all others.
It is the ultra-luxurious all-purpose coupé—an all-open
or all-enclosed car at will by the Cole patent hood.

Brochure post free.

WM COLE & SONS, Ltd.

Coachbuilders to the Royal Family,
235, HAMMERSMITH RD., LONDON, W.6
Telephone
Hammersmith 1413, 1414, 1415



Angus-Sanderson

14 H.P.
De Luxe

In every detail the car
bears the impress of
careful thought. It is a
real 'quality' car, and
will eventually be one
of the most popular
British motor vehicle

Illustrated London News

SIR WM. ANGUS.
SANDERSON & C° LTD
NEWCASTLE-ON-TYNE.





A Note on Motor Insurance

THE respective merits of various policies cannot be judged by a comparison of Premium Rates alone. The conditions of the Policy, and the reputation for liberal settlement are the paramount factors from the point of view of the Car Owner.

THE "WHITE CROSS" have an unrivalled reputation for the generous settlement of Claims. The Policy is free from all vexatious conditions and has no compulsory Arbitration Clause.

SPECIALLY authorised to issue the R.A.C. Model Policy.

THE WHITE CROSS INSURANCE
ASSOCIATION - LIMITED
5 MOORGATE STREET, LONDON, E.C.
and Branches in all the principal Provincial Towns.

PARTICULARS ON APPLICATION.



The LIVE BRITISH MOTOR AGENT

who wants for his
clients

A HIGH-GRADE SIX-CYLINDER
TOURING CAR

at a reasonable price
will at once have a
look at the

PAIGE

C A R

London Showrooms:

119, MOUNT STREET,
BERKELEY SQUARE,
W.1

WRITE FOR FULL PARTICULARS



Royal Vinolia

TOILET REQUISITES.

VINOLIA COMPANY LIMITED.
LONDON.

R.V. 281-

**INVALUABLE FOR
MOTORING HOLIDAYS**

WHEN packing-up for your holidays be sure to include the Royal Vinolia Toilet Requisites in your portmanteau.

A Royal Vinolia Toilet prevents the roughness usually caused by exposure to the sun and wind. It keeps the skin soft and velvety, preserving and enhancing the charms of the complexion. Every toilet need is met by Royal Vinolia. The following is a selection:

*Royal Vinolia Cream, Boxes, 1/3 & 2/-
Royal Vinolia Talcum Powder,*

Tins, 1/- & 1/6

Royal Vinolia Soap - Tablets, 8d

*Royal Vinolia Solidified Brilliantine,
Metal Boxes & Tubes, 1/2 each.*

*Royal Vinolia Tooth Paste,
Tubes, 7½d. & 1/3*



MOTOR Advertising

SPACE VALUE AND SPACE POLICY

W

HITE space—more costly than freehold sites in the Strand. Millions of money are spent on it yearly. But, though white space costs much, it is worth nothing. The advertiser must make it worth the cost — and a great deal more.

¶ It is one of the hopeful signs in British advertising that advertisers are appreciating more and more that the cost of white space is only the first cost of an advertisement.

¶ White space should be considered also as something more than merely advertisement accommodation. It is an element in advertising policy—it can be made a force in a campaign. When this is understood, white space is handled as a master-mariner handles the sails of his craft—with sure effect.

¶ Clearly, white space and the media to which it appertains require for their efficient selection and handling much trained judgment and skill. Obviously the requirement must be met.

¶ This Agency practises definite theories based on study and analysis of white space. We are successful because we know what we are doing in every section of our work.

¶ To any manufacturer whose business does not compete with that of any of our clients we give an invitation to consult us about his advertising.

W. S. CRAWFORD Ltd
Advertisers' Agents and Consultants
CAVEN HOUSE, KINGSWAY
LONDON, W.C

Telephones : REGENT 5068 & 5069

Telephone Nos.:
Gerrard 746 & 747.

MESSRS. TROLLOPE

Estate and Land Agents, Surveyors and Auctioneers,
25, MOUNT STREET, GROSVENOR SQUARE, W.I.

Hobart Place, Eaton Sq.
West Halkin St., Belgrave Sq.
5, Victoria St., Westminster,
S.W.

BY DIRECTION OF SIR OSWALD MOSLEY, BART.

STAFFORDSHIRE

On the Borders of Derbyshire.

THE VALUABLE FREEHOLD RESIDENTIAL, MANORIAL,
AGRICULTURAL AND SPORTING ESTATE
known as

"ROLLESTON HALL"

Burton-on-Trent,

extending to an area of nearly

3,825 ACRES.

comprising the Mansion containing some 40 bedrooms, a fine suite of reception rooms, several bathrooms. Electric light, central heating, large soft water tanks, and every amenity appertaining to an IMPORTANT COUNTY SEAT.

PARK WITH CHAIN OF THREE LAKES.

Seventeen excellent dairy farms, 24 small holdings, numerous cottages, accommodation lands, several superior Residences, brick and glass works, allotment gardens, eligible building sites, Freehold ground rents, etc. The whole (with the exception of the Mansion and park) let and producing an actual rent roll of about

PER £8,571 : 13 : 0 ANNUM.

MESSRS. GEORGE TROLLOPE & SONS are instructed to SELL this important Estate by AUCTION as a whole, and if not so sold, then in Lots, at the Co-Operative Hall, Byrkley Street, Burton-on-Trent, on WEDNESDAY and THURSDAY, October 22nd and 23rd next (unless previously Sold privately as a whole).—Illustrated Particulars, with plan, may be obtained (price 10s. each) of THE AUCTIONEERS, Messrs. TROLLOPE, 25, Mount Street, Grosvenor Square, London, W.I.; or of the SOLICITORS, Messrs. OLIVER RICHARDS & PARKER, 1C, King Street, St. James's, London, W.I.

PRELIMINARY ANNOUNCEMENT

By Direction of the Exor. of the late SIR ROBERT LUCAS LUCAS-TOOTH, Bart.

"HOLME LACY"

Between Ross and Hereford.

ONE OF THE MOST BEAUTIFUL COUNTY SEATS IN ENGLAND

Extending to an area of about

3,396 ACRES

comprising a

MAGNIFICENT HISTORICAL MANSION,

In Excellent Order and surrounded by a Deer Park
of about 288 Acres, in which are Three Lakes.

Noble suite of reception rooms, billiard room, music room, about 20 principal bedrooms, eight bathrooms, and ample servants' accommodation. Stabling, garages, home farm, etc.

BEAUTIFUL OLD GARDENS, ORNAMENTED BY GIANT YEW HEDGES

Nine excellent farms, numerous cottages, well-placed woods affording capital shooting, and the ESTATE IS BOUNDED FOR A CONSIDERABLE DISTANCE BY THE RIVER WYE, WHICH AFFORDS

UNRIVALLED SALMON FISHING.

MESSRS. GEORGE TROLLOPE & SONS are instructed to offer this important Estate FOR SALE BY AUCTION in the early autumn, on a date to be published later, unless previously sold privately.—Particulars and conditions of Sale are in course of preparation, and, when ready, may be obtained of SOLICITORS, Messrs. THOMPSONS, QUARRELL & JONES, 3, East India Avenue, London, E.C.3. RESIDENT AGENT, Mr. G. W. HUNT, "Holme Lacy," Hereford. AUCTIONEERS, Messrs. GEORGE TROLLOPE & SONS, 25, Mount Street, Grosvenor Square, W.I.

SHINFIELD PARK NEAR READING

THIS most beautiful Estate of 75 Acres to be Sold, with old-fashioned Residence reputed to have been erected in the reign of William and Mary, in most excellent repair, the inside requires modernizing and decorating, situated in an exceptionally well timbered Old Park, with a commanding view of the surrounding country. It is only ten minutes' run from Reading Station. There are six good cottages.

THE WHOLE TO BE SOLD
AT A LOW PRICE

Apply to Owner: W. VINCENT, BROUGHTON, COLEY AVENUE, READING

Standardisation

WHERE supplies are ample and demand is universal, standardisation makes for economy. The Government do well to direct attention to American systems of standardisation. We can, with advantage, copy many of them.

But room must always be left for originality, for supremacy, for the unique in design, for the artistic in expression.

As Sheraton is beyond standardisation,
As Shakespeare went beyond all standards,
As Joachim is not easy to copy,
As Eastern colour cannot become the standard for the West,

Haig & Haig Five Stars Scots Whisky

must not be standardised with other Whiskies.

During the temporary period of control, Haig & Haig Whisky has had to be sold at the same price (in the Home Market) as the poorest and youngest home-made Spirit. This will be changed when control is removed.

*Meantime you should get Haig & Haig
if you can. It is the Sheraton quality.*



IN the Home Market I am very scarce owing to Government restrictions. No new accounts can be opened at present

MY famous contents are exported in this bottle

Africa is calling for me
India is calling for me
Ceylon is calling for me
Egypt is calling for me

ARE YOU ?



Haig & Haig Ltd: Head Office: 57 Southwark Street London S E 1

110
Guineas

110
Guineas

The Speedy Car

BRITISH MADE

ECONOMY—THE ORDER OF THE DAY

The Best Value at the Lowest Cost

THE SPEEDY TWO-SEATER CAR One Hundred & Ten Guineas

SPECIFICATION.

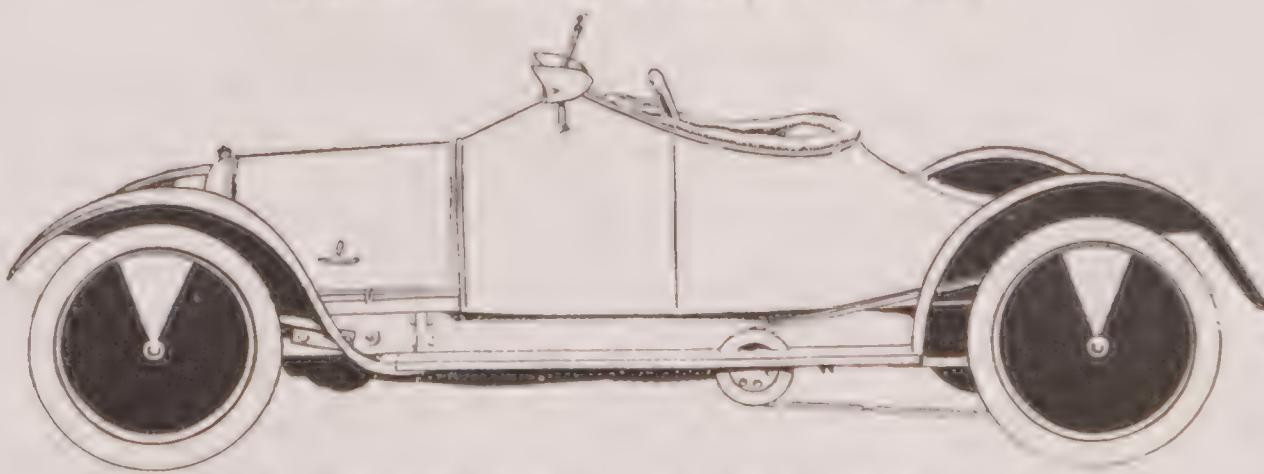
8 H.P. Twin Cylinder V-shaped Engine, air cooled.
First grade Magneto.
Two speeds and reverse.
9-in Leather-to-metal Cone Clutch.
Chain drive from engine to gear box, chain from gear box to countershaft and belt from countershaft to driving wheels.
Two Belts, one on either side, to back wheels.
Chassis, 5-ft. 6-in by 4-in. by 1 $\frac{1}{2}$ -in.
Four quarter-elliptic Springs.

Wheels, four disc and wired.
Domed Wings.
Tyres, 650 by 65 or 26 by 2 $\frac{1}{2}$.
Carburetter, of the first grade.
Lighting, Electric.
Body, stream-lined, any colour.
One-joint Wind Screen.
Steering, Direct Adjustable Rake.
Weight under 6 cwt.
Mileage 60 per gallon.

¶ Agencies still open in several Districts.

¶ Individual orders filled in rotation.

TERMS: Ten Guineas with Order,
balance when Car is ready for delivery.



THE PULLINGER ENGINEERING CO.

WORKS : PECKHAM, S.E.
& PUTNEY, S.W.

REGISTERED OFFICE: GILTSPUR CHAMBERS, 52 HOLBORN VIADUCT, E.C.1

110
Guineas

110
Guineas



MOTOR CAR HOUSES

which are really Substantial Structures

THESE Portable Motor Car Houses of Boulton & Paul's are built to last—made with carefully selected timber from our own drying sheds—constructed by highly-skilled labour—and finished in that fine way which characterises all B. & P. work. They are in a class apart—not comparable with the light and flimsy houses offered in many quarters.

If you want a House for your Car which will give you pride and lasting satisfaction—if you want the best obtainable at a moderate price—let BOULTON & PAUL make it for you.

The Illustration shows a B. & P. Motor Car House in actual use. It will be appreciated how admirably it has blended with its surroundings and become quite picturesque.

These houses can be made to special requirements, but a wide range of designs in varying sizes are ready for early delivery. The walls are made in sections to bolt together, and the roof bundled, for easy fixing by purchaser's men on his concrete foundation floor. If a wood floor is preferred to concrete, 1-in. rebated floor boards and joists can be supplied. We supply all necessary working drawings to facilitate erection by any handy man. Sizes from 15 ft. by 18 ft. to 24 ft. by 18 ft. Full Specification and Estimate on Application.

Write for Illustrated List showing many Designs.

 **Boulton & Paul** *Ltd.*
NORWICH

Enquiries invited for Portable Sheds, Greenhouses, Garden Frames, Vineries, Peach Houses, Kennels, Poultry Appliances and Wood Buildings of all kinds.



There's Nothing

now to hinder your ordering a body for your new car (no matter the make), that will reflect credit on your choice in any company.

THE REGENT CARRIAGE
Company bodies are built for the discriminating, those who require distinction without freakishness, comfort without complication, and sterling quality at an honest price.

Send for particulars of the latest Regent bodies.

THE
REGENT

CAR & AERO CO.
126-132 NEW KING'S ROAD
FULHAM, LONDON, S.W. 6.
Telegrams: "Carbody-London"
Telephone: Fulney 2240-1.

GUARANTEED
TWELVE MONTHS



English built
Coupé £750

Other Coach-
work to order

PRICE COMPLETE

£575

Fitted with English built Sporting four-seater - £650

BOOK NOW FOR AUTUMN DELIVERY

America's Best Light Six

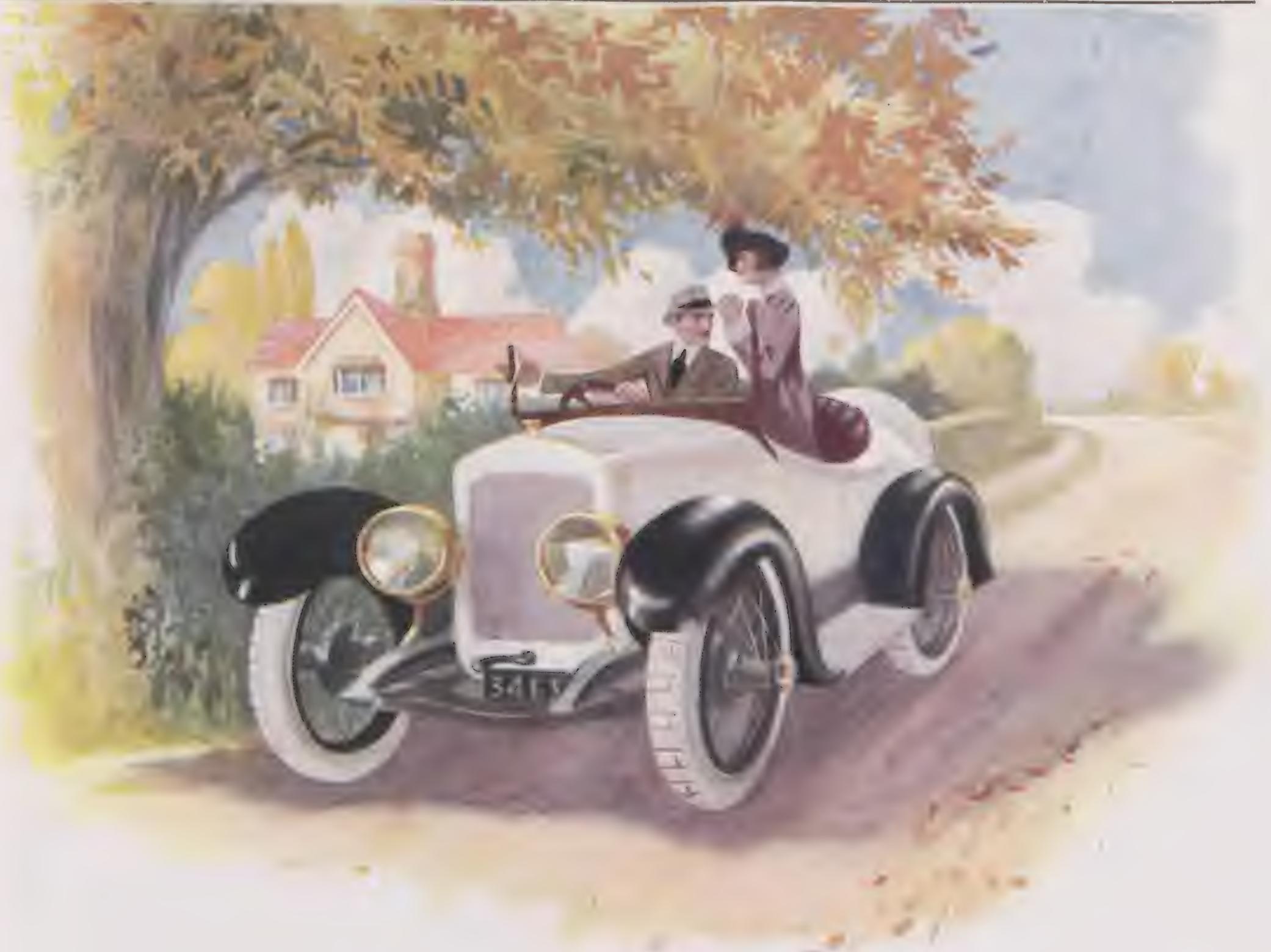
MAIBOHM
TWENTY

SOUTHGATE LTD.

Showrooms : 19-21 Heddon St., Regent St., London, W.1

Telegrams : "OMAISOBEME, REG. LONDON."

Sole
Manufacturers
for G. E. & T.



THERE'S the very cottage!
Now the car's available
you will enjoy the drive
morning and evening, particu-
larly since the car is fitted
with Dunlop tyres, and that
means no tyre trouble.

DUNLOP RUBBER CO., LTD.

Founders of the Pneumatic Tyre Industry,
Para Mills, Aston Cross, BIRMINGHAM.
LONDON: 14, Regent Street, S.W.1.
Telephone 5812 Gerrard (8 lines).



TRADE MARK.

**ARE YOU PLAYING A
DUNLOP GOLF BALL?**

68·69 and 70
Ludgate Hill

In the Shadow of St. Paul's

TRELOAR & SON

70 TRELOAR 68

TRELOAR

For
Floor
Coverings

"Ludgate Hill for Carpets"

Specialists
for
80 Years

TRELOAR

Call and Inspect or Write for Patterns and Prices

68·69·70, LUDGATE HILL, LONDON. E.C.4

Seamless Armchair
Carpets Fur Wilton
Carpet Pile Pure Oiled

British
Oriental
Turkey
Carpets
Cotton
Matting.

*On
the
Links*

BEST FOR
EVERY
DRIVE

"CLINCHER" TYRES—
like "Clincher Cress" Golf
Balls—are good for every
drive. For long runs or
short, "CLINCHERS" are
always in form—always
dependable—always safe.



Peace Perfect

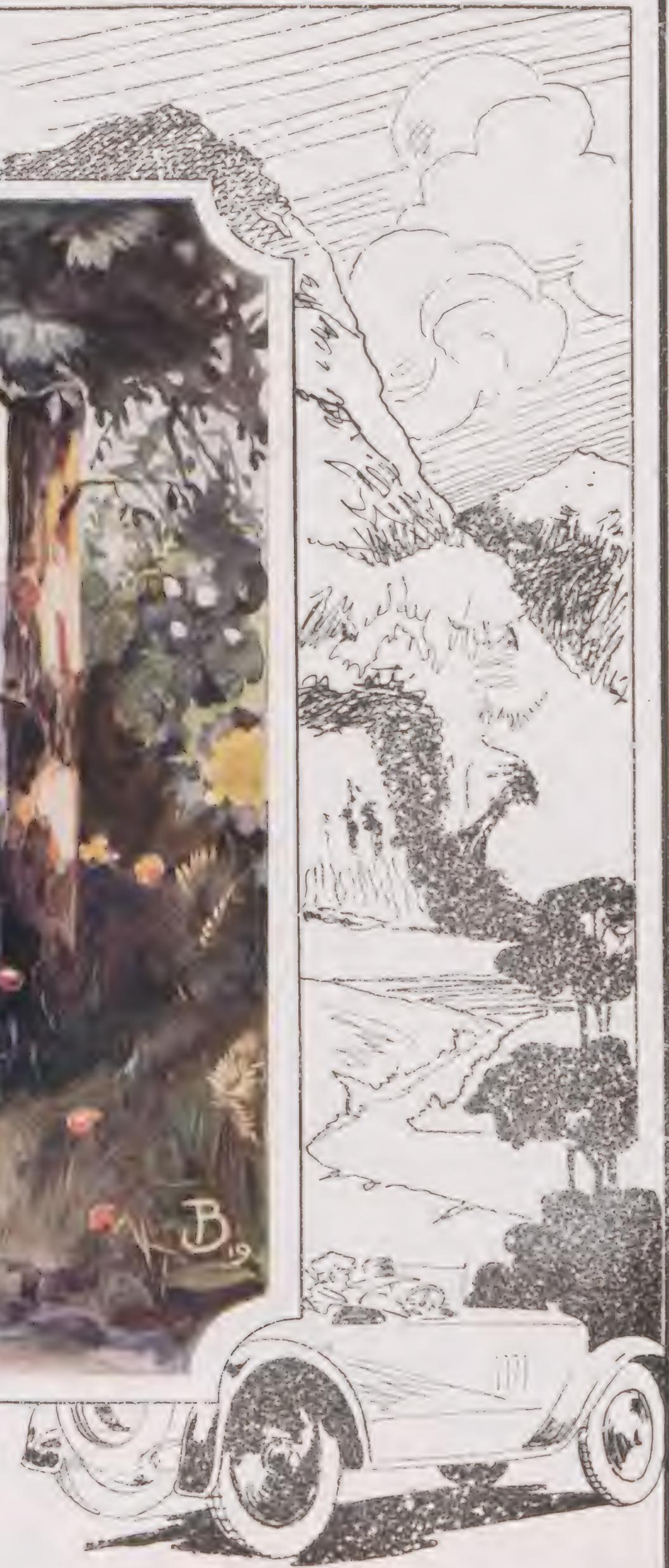


THE INTERESTS OF
No 3. Touring in the
Rapson Victory Unpuncturable
RAPID JACK CO., 22 Manchester Buildings,

pect Peace



OF MOTORING
the Mountains
urable Pneumatic Tyres
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Austin

Sunset

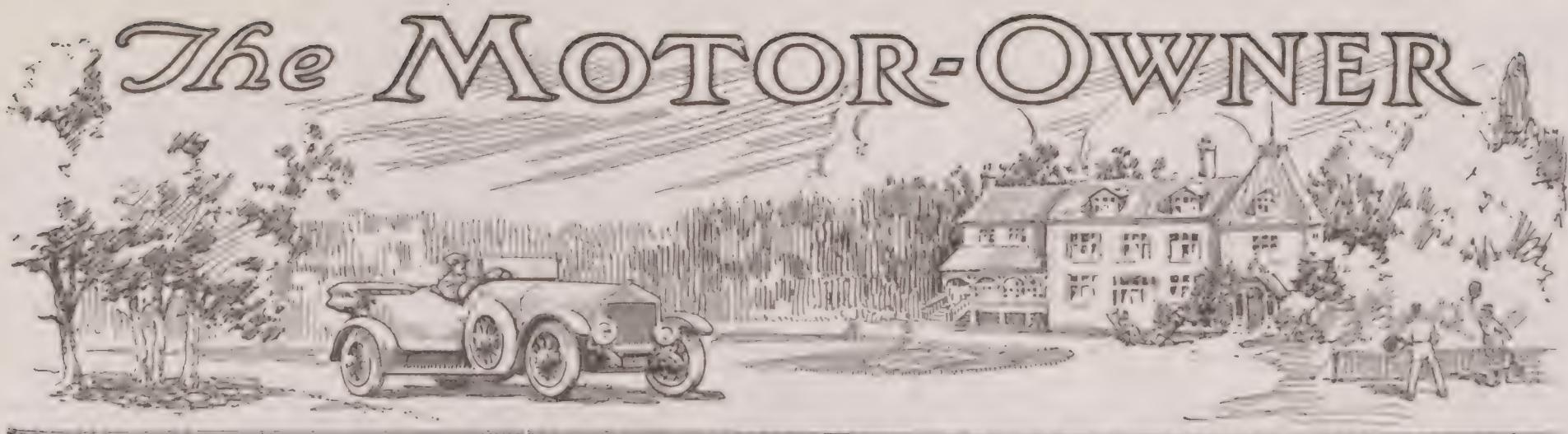
floods the sky with a cascade of brilliant colours, the scent of wild flowers from field and hedgerow fills the air. With such surroundings one thing is wanted to complete the happiness of the owner-driver, and that is complete motoring efficiency. In an "Austin Twenty" he possesses this crowning blessing of the tourist on wheels and is enabled to float serenely over hill and dale like a missioned spirit unaware—the mechanical perfection of the engine and chassis combine with the comfortable lines of the body work to make rapid movement a delight. The close of a 100 mile run in the new "Austin Twenty" accomplishes itself without fatigue and synchronises with

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THE COMING PARIS SHOW: SOME PRE-WAR VIEWS OF
THE PETIT PALAIS.



The MOTOR OWNER

Vol. I.

OCTOBER, 1919.

No. 5

EDITORIAL JOTTINGS.

Official Trials. For good and obvious reasons official trials were at a discount during the war. The need for certificated tests, however, under unimpeachable control, is now as great as ever, if not more imperative, indeed, than at any previous period in motoring history. After a prolonged interregnum in production on the part of the automobile industry there will ultimately be an immense array of new devices, some of which will be heralded as thaumaturgic by their sponsors at all events. But however assiduously "boomed," no article can hope to enjoy the full confidence of the public until it has been submitted to an official test of the kind of which the Royal Automobile Club has conducted so long and useful a series.

The Benzole Test. Then, too, there are trials which may be voluntarily initiated for the public good, and such a one is now in progress under the direction of the Automobile Association and Motor Union. It was high time that the question of the suitability or otherwise of benzole for internal combustion engines was set finally at rest. On the one hand there is a large amount of accumulated evidence in benzole's favour, extending over many years, while on the other there appear statements from time to time, written by motorists of undoubted experience, which make it only too clear that benzole is not invariably to be trusted. The rejoinder of the benzole advocates is that, where unsatisfactory results have been obtained, the

wrong kind of fuel must have been used. As the A.A. trial, however, is being carried out on the official fuel of the National Benzole Association, the case for benzole must stand or fall by the results. If the N.B.A. cannot make good its claims no one else is likely to do so, and the supremacy of petrol will be indefinitely prolonged. That it is seriously threatened we none the less hope and believe.

R.A.C. Trials. In conformity with its somewhat overdone practice of hiding its light under a bushel, the Royal Automobile Club has not up to the time of writing publicly announced that it will also conduct a 10,000 miles test of benzole. As a matter of fact, this trial will be made on the same car as that which will carry Mr. Rapson's "unpuncturable" tyre to success or otherwise. October 6th is to be the date of starting, and the car will run 1,000 miles per week under official observation. Further evidence will therefore be forthcoming as to benzole, while the much-discussed tyre will afford either its friends or its enemies the opportunity of saying "I told you so."

A Bold Venture. In more ways than one the trial of the Rapson tyre will be invested with a quite unprecedented degree of interest; indeed, it should prove a totally different affair from the usual test of a proprietary article. For there is no gainsaying the fact that a great many motor-owners would be very glad to find a really unpuncturable tyre—always provided that immunity from trouble has not been purchased at the price of unresilient running, axle breakages, and various other

disabilities associated with non-pneumatic tyres. For their own sakes, therefore, private owners would welcome a success for Mr. Rapson. There are those, too, who will regard the issue from the sporting, and others from the sardonic, point of view. For Mr. Rapson has certainly done a good deal of shouting in advance ; nothing like it, in fact, has ever before been seen in the motoring world. But it has to be remembered that this preliminary pyrotechny has not been of that safe form of public trumpeting which is content to go on indefinitely announcing that a given car, or tyre, or carburetter is "the best" ; the inventor has made great claims for his tyre with the full consciousness that it was to be submitted to the ordeal of a public and certified trial.

Will It
Succeed ?

At least, therefore, it will be conceded that he has faith in his own invention, which cannot invariably be said of many who fight shy of the uncomfortably searching nature of an R.A.C. trial. Great indeed will be the failure if the tyre does not survive the trial ; the result, in that event, will be a tragi-comedy pure and simple. Quite apart, however, from the fact that the unpuncturability of the tyre has to be proved or disproved, the test of durability alone will be eminently drastic. Has any manufacturer of the conventional type of pneumatic tyre ever ventured to put his product through a certified test of 10,000 miles ? For these reasons we think that Mr. Rapson will carry a certain amount of popular sympathy. As for the probable issue, we have seen enough of the Rapson tyre to lead us to warn the ultra-sceptical, at all events, to be somewhat more careful of their words. Only a few days ago an expert gave it to us as his opinion that the tyres on the trial car would be worn to powder inside, owing to internal friction, after the first hundred miles. This is sheer nonsense. Our own impartial opinion is that the tyres will prove themselves to be of sound and scientific construction, reasonably durable, possessed of considerable resilience, and altogether a new and desirable contrast to a long succession of anti-pneumatic monstrosities. We would rather suffer punctures on ordinary pneumatics at the rate of two a day than endure the defects of semi-solids and patent fillings ; but *prima facie* the Rapson tyre appears to us a practicable compromise and

destined to preserve the motor-owner from roadside trouble to a remarkable degree.

Traffic
Signals.

Eminently Gilbertian is the situation which is disclosed by a communication from the Commissioner of Police of the Metropolis. A special committee of his appointment is considering what it can do in respect of traffic regulation on other than special occasions, and in this connection it has drawn up a suggested code of signals for the use of drivers. So far, so good. The proposed hand motions appear simple of execution and comprehension alike, and if finally promulgated by the Commissioner, and duly adopted by drivers generally, they will indubitably augment the safety of the London streets.

But is it not paradoxical in the extreme that the Solons of New

Scotland Yard and their predecessors should have taken three decades or more to appreciate the need for the suggested code ? London traffic underwent a definite change when bicycles began to flit about the streets at a faster pace than that of the horse. Then came the motor-car, and afterwards the taxicab and motor 'bus. At any time for years past an official code of signals would have been welcomed. While wondering, therefore, that New Scotland Yard has not moved earlier, we can only express what measure of gratification is conveyed in the familiar phrase—"Better late than never."

For the
Tyro.

In all periodicals which deal with the interests of a particular class or movement there is an almost irresistible tendency to approach every topic from the point of view of the experienced reader. The tyro, none the less, has claims to be considered, and we make no apology for publishing in this issue an article under the head of "Gear-Box Mysteries." As a very old motorist remarked to us the other day, it is astonishing how many car-owners there are who do not understand the vehicles they own or drive ; there will be more still when new cars are unloosed in quantities. For their benefit we have invited a motoring engineer to deal with gear ratios in a way that, we trust, will prove useful and acceptable.

MOTORING ON THE VELD.

Adventures with Mud-Tracks and Pools.

WHAT is known as Eastern Transvaal covers a large portion of the map of the Transvaal, and the highways netting it vary from "too good to be true" to the usual South African back-veld road — terrible.

A motor trip can be taken to Pilgrim's Rest—the heart of the Eastern Transvaal—without fear in the dry season, for although the road surfaces in many parts are rough and the hills bad, they can be taken carefully. But the trouble often is to discover the dry season, and this part of the country, apart from its regular

summer rains, appears to get spasmodic rains in the midst of the off season. Even after a moderate rain the roads become mud-tracks, and then after an hour or two's sunshine become baked, making it like travelling over a good imitation of a ploughed field carried out in concrete. That is what it feels like to the motorist, anyway. However, this can be taken carefully, and one can be sure of being a few miles from the morning's starting point by evening.

The permanent stop to the day's mileage record is usually caused by a little inoffensive-looking pool of dirty water in the centre of an



PART OF A "WELL-MADE" ROAD IN THE EASTERN TRANSVAAL.



THE SAME ROAD AFTER A FEW MINUTES' DOWNPOUR.

almost dry road with a fine surface for the last few miles. It is just suspicious-looking enough to pull you up; and then immediately inspires

and borrowed six oxen and the farmer, walked six miles back, and having seen your 25 horse-power car towed out by those six oxen [as if it were a match-box, you proceed and solemnly swear never to take another pool without getting out and wading. Being near evening, you resolve to travel until midnight, if it is necessary to reach your destination. Just as it has got dark you pull up suddenly before another pool—very carefully this time—proceed to wade through and find the water over a foot deep and getting deeper with every step.

Now is the chance to shine, and cheat that grasping mud of its victim. A walk around the veld for a hundred yards on either side of the pool proves that

sufficient confidence to make you travel on again—and sink with sickening softness at the far end just as you were congratulating yourself

the ground is firm, and a trek over the bumpy veld is made with confidence until passing over that part of the earth one felt so



A CAR CROSSING THE CROCODILE RIVER BRIDGE, WITH RAIN FOLLOWING UP BEHIND.

on having successfully negotiated another obstacle.

After having walked six miles to a farmhouse

sure was sound. Then comes that sickening sink once more, and another six miles walk to the nearest hotel, which happens to be



1. This car stayed here all night.
2. The farmer with his two horses did not think he would be able to effect a removal.
3. Hitching the cart to the car. The horses tried, but failed to dislodge the car.
4. The man with the donkey-cart insisted upon trying.
5. The donkeys pulled until they moved the car from the thick turf, and with the help of the engine got the car on to solid ground.

(Our photographs were recently taken during a tour through the wilder parts of the country. After a start in fine weather the conditions got worse, and it was no easy matter to complete the journey. One stretch of 45 miles took a whole day to get through, owing to skidding, in spite of chains on the wheels.)



Wonderfontein, on the railroad station of that name.

As no oxen can be obtained around this locality you look around for horses in the

the use of his animals—which offer is first rejected with as little scorn as possible, and then accepted as a last hope. The donkeys are hitched on and then cajoled into pulling, which they do after a bit. Having started to pull they, unlike horses, continue in spite of the fact that they do not appear to have an earthly hope of budging your car.

But the word "can't" is certainly not in their dictionary, and they continue to pull until the car gives a little heave, and then another. Your *blase* lack of interest now fully dispelled, you excitedly jump into the car, start the engine, and give the willing little beasts the help of your 25 h.p., and land your car on the firm, hard veld—the wrong side of the pool. Having the donkeys near-by to give confidence you travel straight through the deep pool with ease. Trying to miss the water landed you in the mud the night before.



ON THE WAY FROM MACHADADORP TO LYDENBURG.

(No attempt at grading has been made, the road simply wandering anyhow over the mountains.)

morning, and get the use of two, who fail to tow the car—which has become a part of the landscape by now—one inch. The affable driver of a small cart with two minute donkeys offers



THE OLD AND THE NEW ON A TRANSVAAL ROAD.



Photo. by]

THE NORTH FRONT.

["The Motor-Owner."]

CARS AND COUNTRY HOUSES.

II. Badminton House,

THE HOME OF THE DUKE OF BEAUFORT.

BEAUFORT is a name famous in history and sport alike. During the period that historians regard as marking the transition from mediæval to modern times the Beauforts were busily engaged in shaping our national destinies, and the most ignorant of history will remember that the story of the Wars of the Roses without the name Beaufort, or Somerset, sprinkled liberally over its pages would be but half the tale. In fact, it must be confessed that scions of the Beaufort family were not entirely innocent of the charge of having had much to do with starting that terrible catastrophe in our history, for the early members of the family—descendants of John of Gaunt—had claims to the throne that in those primitive days always made their possessors dangerous subjects when the monarch was one like Henry VI.

In the equally terrible turmoil of the seventeenth century the Beauforts again played a prominent part, and the present title dates from 1682, when it was given to Lord Herbert, the son of that Marquess of Worcester who was undoubtedly something in the nature of a mechanical genius. He has the best claim of



Photo. by]

THE MARQUESS OF WORCESTER AND LADY DIANA SOMERSET
AT THE MAIN ENTRANCE.

["The Motor-Owner."]

anyone to having made the first steam-propelled boat. Certainly the wonderful contraption he had running on the Severn in 1666 could scarcely be regarded as a direct ancestor of the modern steamship; but it was a boat, it was propelled by steam, and it was more than a century before the same idea again occurred to, or was attempted by, anyone else.

Badminton House, the present chief seat of the Beaufort family, is situated in that corner of Gloucestershire that borders on Wiltshire. Although the oldest parts of the house date from the thirteenth century, practically the whole of the edifice as it stands at present is due to the activity of the first duke and his lady, who came into its

work, if one may judge by results and by the accounts she sent to her husband of the progress things were making.

Strangely enough, although her letters contain references as to the cost of things and to several quite minute details, there is no record of the architect, and to this day it is not definitely known who was responsible for the building of this, one of the finest mansions in the country. An interesting characteristic is revealed in one of her ladyship's letters when she refers to the finding of some old silver. She regrets that it has not been melted down and



Photo, by]

THE EAST FRONT.

[*"The Motor-Owner."*]

recast in modern design !

The oldest portions of the house are now



Photo, by]

THE WEST FRONT VIEWED FROM ACROSS THE DUCK-POND.

[*"The Motor-Owner."*]

ownership before acquiring the title. While the building was in progress, Lord Herbert was mainly in London and her ladyship stayed at Badminton to superintend operations, and she certainly appears to have been well fitted for the

incorporated in the west wing, which consists mainly of offices, though the servants' hall projects into the south garden court. As might be expected from the date of the main buildings, their general appearance is somewhat formal,



[*The Motor-Owner.*]

3.—THE ORANGERY GARDEN.

2.—THE EAST GARDENS AND WING.

1.—THE SOUTH FRONT.

SOME EXTERIOR VIEWS AT BADMINTON.

Photos, by]

though none the less imposing for that. The house is approached from Badminton village through the stable yard which leads to the west front and usual entrance, and thence through



A STRAKER-SQUIRE USED TO CONVEY HOUNDS.

another stone gate to the north front, the principal entrance on which side opens to the great hall. It was the third duke who modelled the decorations of this hall in the year of the '45 rebellion, and the hall contains pictures by Wootton of his Grace hunting on Salisbury Plain and racing at Newmarket—the third duke was a good Beaufort if only by virtue of his love of sport.

The hall commands extensive views over the

from the great hall may be in part due to the courtesy of the neighbours when the park was being laid out, for it is said that many of them cut and planted their trees with the deliberate end in mind of giving the best possible views from the hall. In the park are two herds of deer—one fallow deer and the other large red deer with fine antlers.



THE SAME CHASSIS WITH THE TOP REMOVED.

On the east side of the house are gardens and conservatories fully in keeping with the place as a whole, and on the south side is the parish



Photos. by)

THE GARAGE AT BADMINTON.

"*The Motor-Owner.*"

park, which is an exceptionally fine one, being nearly nine miles in circumference and containing several fine avenues, one of which is over three miles long. The extensive views obtained

church, which dates from 1785. Among other impressive monuments to the Beaufort family the church contains a particularly striking one to the first duke, which was originally in

*Photos by*

1.—THE GREAT HALL. 2.—THE DINING ROOM, WITH GRINLING GIBBONS CARVING. 3.—THE DUCHESS OF BEAUFORT'S BOUDOIR. 4.—THE SERVANTS' HALL, WITH ANTLERS.
SOME INTERIORS AT BADMINTON.

"The Motor-Owner."

St. George's Chapel, Windsor, whence it was removed in 1874. Also on the south side of the house are a very fine orangery and what are supposed to be the finest two specimens in the country of *Salisburia adiantifoldi*, a tree with leaves like the maidenhair fern.

The architecture of the drawing room shows the influence of Flaxman, and an interesting item of furniture in it is a fine cabinet of Florentine mosaic which was presented to the third duke by Cardinal Alberoni, one of the

ings. The Singer is the car most favoured by the Duchess herself. The character of the Straker may best be seen from our illustrations; it is used for the transport of cricket and football teams, and for that of 26 couples of the famous Badminton Hounds when the meets are some distance away. It has a detachable top—a feature that is becoming increasingly popular in modern body work—which, when not in use, is kept hanging from the roof of the garage, so that it may readily be lowered into position on



Photo. by]

THE EAST GARDEN AND DRIVE AT BADMINTON.

["The Motor-Owner."]

cleverest of statesmen at a time when statesmen were really clever, whose name was such a power in the world at the time when Europe was worried over the Spanish Succession. As one would expect, the house contains a fine gallery of family portraits of historical interest, these extending right back to John of Gaunt himself.

The garage contains six cars—a Daimler, a Metallurgique, a Singer light car, a Straker-Squire and two Panhards, one of which has seen twelve years' service as a tender at hunt meet-

the main body when required. With the car in the illustration are shown the huntsman—Tom Newman—as well as the chief whip and the Duke's principal chauffeur.

His Grace the ninth Duke, who succeeded his father in 1899, is just now unfortunately an invalid as the result of a trap accident, from which he is, however, making steady recovery. His interest in all forms of sport is well known and is reflected also in his son, the Marquess of Worcester, who has recently been gazetted to the "Blues."

THE NEW RENAULTS.

AT a time when to ask for full details of post-war models is little more likely of satisfaction than would be a request for "John Bradburys," it is refreshing to be able to obtain not merely printed particulars but an inspection of an actual chassis. Renaults are in the happy position of being able to offer this advantage—which is the more noteworthy in that French cars in general are even more conspicuous by their absence than the 1920 British models.

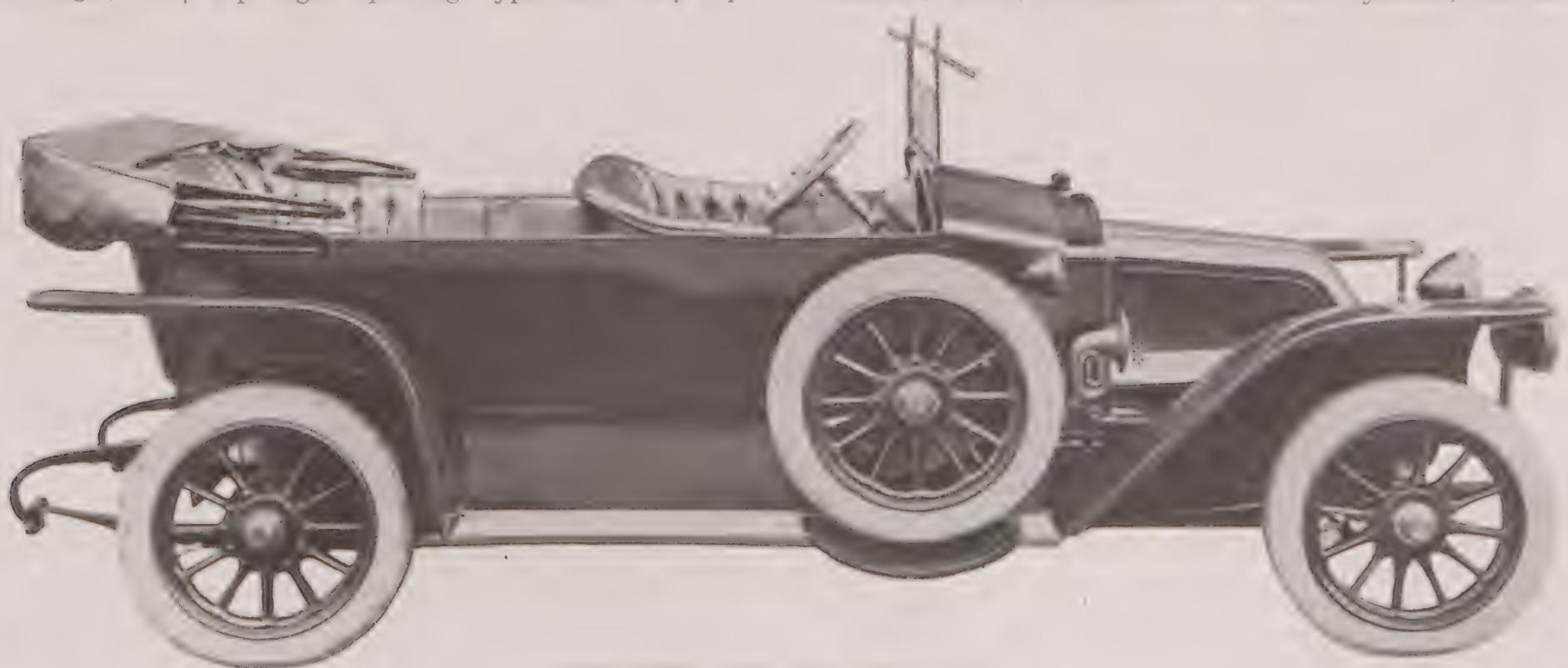
Further than this, the Renault cars and chassis now available for inspection are not merely demonstration vehicles, but are regarded by the British distributors as the immediate fore-runners of a steady supply. The model at present visible at the Pall Mall showrooms is the 15·8 h.p., but Renaults are being made in four powers and six different types, as follows:—13·9 h.p.; 15·8 h.p. normal and 15·8 h.p. town carriage; 22·4 h.p. light sporting type and 22·4 h.p.

from beginning to end is the better, but as the majority of those manufacturers who have abandoned the latter policy for the former would frankly admit that their reason for so doing lies partly with the difficulties of the after-war situation, one is inclined to give Renaults credit for knowing what they are about. One naturally expects much from this car on account of the long and successful record which lies behind the name; and it is worthy of note that while the present car is a post-war model in every sense of the word, and embodies certain new features not previously associated with the make, no single point which prior to 1914 made up the Renault individuality has been sacrificed.

In describing the four 1920 models, therefore, it is unnecessary to go elaborately into technical details, since everyone is acquainted with the typical radiator-behind-engine cooling, the remarkably clean run of the transmission; with the combined fan and flywheel, the air-



PLAN VIEW OF THE 15·8 H.P. CHASSIS.



THE NEW 15·8 H.P. RENAULT.

normal; and a 37·2 h.p. six-cylinder model, the smaller engines all having four cylinders.

This gives a range of models suitable for all imaginable purposes, and incidentally is a distinct departure from the prevailing tendency to specialise on the production of one model only. It is a debatable point whether a policy of concentration or one which covers the automobile demand

cooled foot brake, the method of attachment of carburettor direct to engine, the integral casting of the exhaust leads in the single engine block, and the accessible position of the magneto in front of the cylinders and driven by a cross shaft from the timing gear.

So far as the appearance of the engine is concerned, there is little change, the principal point—the fitting of self-

starting apparatus—being unnoticeable on account of the fact that the single-unit S.E.V. self-starting motor and generator is coupled direct to the engine in exactly the same position as that occupied by the lighting dynamo of 1914. Gate gear change had been adopted on Renault cars in that year, by the way, so that the fact that all cars of this make in future will embody the system is scarcely new. In fact, practically the only remaining feature of any importance that comes under this category is the air shutter on the inlet pipe, controlled by a milled boss in the centre of the steering wheel, by means of which the mixture may be varied by very fine gradations.

Little is known, unfortunately, on this side of the 13·9 h.p. chassis, beyond the fact that the bore and stroke are 75 mm. by 120 mm., but this promises to be a particularly interesting little model. The engine dimensions of the larger cars are as follows:—15·8 h.p., 80 mm. by 140 mm.; 22·4 h.p., 95 mm. by 160 mm.; and 37·2 h.p., six-cylinder, 100 mm. by 160 mm.



A 10 H.P. SECQUEVILLE-HOYAU.

Fresh from France.

AMONGST the new arrivals in Great Britain may be numbered the Secqueville-Hoyau light car, which hails from *la belle France*; and it has every prospect of living up to the previous standard of reputation set by that country. Made at Gennevilliers, this car has Secqueville-Hoyau (England) Ltd., as its British concessionaires.

The Secqueville-Hoyau firm is responsible for the 10 h.p. four-cylinder engine, cast monobloc, the bore and stroke being 60 mm. by 110 mm., with aluminium pistons; at 2,500 r.p.m. 18 h.p. is developed. Helical timing-gears are employed, while the valves are inclined, the sparking-plugs being over the centre of the combustion area. Cooling is by the thermo-syphon system, a two-bladed aluminium fan being carried on radial-thrust bearings in front of the engine. A 12-volt Le Rhône dynamo supplies the power for the electric starting and lighting system.

To provide comfort for all-sized drivers, the steering-column is well raked and is adjustable to suit all, a 2½ in. alteration being possible. Four forward speeds are provided, and the single-plate clutch works between two Ferodo-lined surfaces. Houdaille hydraulic shock-absorbers are fixed to each wheel, and the springs are exceptionally wide and long, being underslung on the back axle. The petrol tank, of 8 gallons capacity, is at the rear of the chassis, and the Weymann vacuum-feed system is employed.

With a high honeycomb radiator, polished aluminium bonnet and nickel finish, the car has a smart appearance.



THE 10 H.P. ERIC CAMPBELL.

The wheel-base is 8 ft. 10 in., and track 4 ft. 1½ in., while the chassis price, delivered in London, is £495, this including instruments in the dash, lamps, horn and tools. A complete car, with English body, may be obtained for £550-£575; and for an extra £5 a 9 ft. 6 in. chassis, suitable for a four-seater body may be obtained.

Automatic Decarbonisation.

REAL troubles are few and far between with the modern motor-car, but the source of one of the few remaining causes of delay or poor running is attacked in one of the interesting new British light cars which are now making their appearances—the Eric Campbell. Engine-knocking due to a piston-head encrusted with carbon, with its attendant mechanical ills, should be impossible, for in the special adaptation of the Coventry-Simplex engine which supplies the car's nominal 10 h.p., the pistons, the skirts of which are drilled out for lightness, have polished aluminium heads, to which the residue of burnt lubricating oil and the usual constituents of engine carbon are little likely to adhere. Racing of the engine, though technically to be deplored, if indulged in periodically and intelligently should serve as the only decarbonising process which it requires.

In view of the fact that the car is a home production, one regards with pleasure the courage of the whole design—the use of unorthodox methods where these serve a useful purpose, and the acceptance of the usual practice where its value is proven and nothing is to be gained by departure therefrom. The car is designed essentially as a two-seater, and is a very complete and comfortable little vehicle.

Among the luxuries which are included in the price of £395 are dynamo lighting to the five lamps, with a particularly neat mahogany instrument board carrying the lighting switches, volt and ampère meters, oil gauge, speed and revolution indicators, a substantial luggage grid, a particularly large xylonite-covered aluminium steering wheel, and—an unusual feature on a moderate-priced car—a Triplex glass wind-screen.

Technical points in connection with the car are briefly as follows:—Bore and

stroke, 66 mm. by 109·5 mm., four cylinders *en bloc*; forced feed lubrication; enclosed valves; silent chain-drive to timing gear; thermo-syphon cooling; leather-to-metal cone clutch with large bearing surface; five Sankey detachable steel wheels; three-speed ball-bearing gear-box; M.L. magneto ignition; Zenith carburettor; leather flexible joints between clutch and gear-box, and the latter and rear axle. Deliveries will be in full swing early next year.

THE RAPSON TYRE.

Impressions of a Trial at High Speeds.

By CAPTAIN W. GORDON ASTON.

IT is a somewhat singular fact that the worst troubles which have ever haunted motorists have been associated with the very thing that made motoring possible, namely, the pneumatic tyre. To-day, the equipment of the modern vehicle includes all sorts of labour-

has therefore been a fruitful source of revenue to the Patent Office, for the meanest intelligence can perceive that there must be a fortune in any device which is reasonably successful. Many promising ideas have been put forward from time to time, but practice has not upheld the claim which were founded upon optimistic theory, and time after time long-suffering motorists, along with the proud inventor, have seen their high hopes dashed to the ground.

Far and away the most promising solution to the problem which has yet been offered is that which comes from the ingenious Mr. F. Lionel Rapson. One is not going to say that the Rapson unpuncturable tyre is perfection itself, for this is a world of compromises, and there are always disadvantages to dilute advantages; but it is a thoroughly practical and well-tried thing, which does accomplish that which it primarily sets out to do, namely, the removal of the risk of puncture or burst whilst retaining the basic pneumatic principle.

I have not had an opportunity as yet of personally testing this tyre quite as exhaustively as I should like, but the ten thousand miles R.A.C. trial

which it is to undergo can be trusted to find out any weaknesses that exist. On the other hand, an extended



THE FORTHCOMING 10,000 MILES TEST OF THE RAPSON TYRE: PREPARING THE CAR.

saving devices, which definitely do away with the need for expenditure of effort, but no such radical treatment of tyre troubles has been brought forward hitherto.

There have been palliatives and means whereby the trouble of mending punctures and bursts could be transferred from the roadside to the garage, but these partake of the nature neither of a cure nor a prevention. Detachable wheels and rims enable one to continue one's journey with the minimum of delay, but they do not exorcise the puncture fiend nor the bogey that engineers bursts. Moreover, the fact remains that the changing of a wheel, involving the jacking up of the car, the lifting of a heavy and generally grimy weight, and the penetration of the dirt-catching "underneath" of the vehicle, is still far and away the least agreeable of the personal services for which motoring occasionally calls.

The complete elimination of pneumatic tyre failures



READY FOR THE ROAD: THE ROLLS-ROYCE ON WHICH THE R.A.C. OFFICIAL TRIAL OF THE RAPSON TYRE WILL BE MADE.

road trial has been sufficient to enable me to form impressions which are highly favourable. Before dealing with these, a brief review of how the tyre works may be not

out of place. It is, to all intents and purposes, a tyre within a tyre, that is to say, the inner tube is surrounded by a soft rubber cover called the deflector, the "tread" of which bears upon the inner side of the outer cover proper. The latter is, of course, reinforced with the usual plies of canvas. The deflector does not solidly fill up the space between the cover and the tube, but is provided with air chambers filled with air at atmospheric pressure.

The first effect of the deflector is to interpose some considerable thickness of material between the tube and the road surface, and this in itself is calculated to reduce likelihood of puncture to a considerable extent. The second effect is, however, perhaps even more important, and is obtained in a highly ingenious manner. As the tyre as a whole revolves under load deflection takes place in both cover and deflector at the point of contact with the road surface. The two, however, do not move as one, but owing to their shape and disposition a relative movement takes place between them.

If a nail should penetrate the outer cover with its point well aimed towards the vulnerable inner tube, according to the well-known instinct of nails, the immediate effect of the relative movement of the deflector is to turn it aside. Thus it may make its way into the tyre, but it is prevented from getting into the air chamber, and outside of this it can do no harm. Tests made with nail studded boards show that this deflecting action does take place to the extent required, hence the chance of puncture is almost inconceivably remote.

It should be noted that the Rapson tyre to which one is referring is not the original Rapson design but a modification thereof, adapted to fit existing wheels and rims. In the fully developed device the inner tube is situated in such a position that practically the full diameter of the cover separates it from the road surface—this, of course, makes it entirely unpuncturable. The adapted Rapson design could be punctured, but only by a most formidable spike which could not possibly be found on any road surface.

The impressions which one was able to form after a run of about 120 miles over "give and take" roads on a Rolls-Royce fitted with Rapson tyres were briefly as follows. As to comfort, which properly comes first and foremost, there was absolutely no fault to be found. The covers, the rubber of which is, incidentally, of unusually good quality, seemed capable of absorbing all ordinary road shocks with the greatest ease. I purposely drove the car over all the pot holes I could find, and if I saw a loose stone in the road I went over it, but in no case could any effect of bumpiness be produced to a sensible degree.

As to speed, it is clear that this can only be decided positively by a most carefully conducted test in which all possible variants are taken into consideration. Theoretically, the presence of a large amount of solid rubber between the air tube and the road should make for a reduction in speed. Practically any such difference as exists is so small as to be utterly negligible. On a flat road the Rolls-Royce, with many, many thousands of miles to its credit, demonstrated an ability to hold a mile a minute with smoothness and comfort. One could not justifiably ask for more.

At lower speeds if there is a retarding influence at all—and one expects to pay a tax to ensure freedom from punctures—it is entirely inappreciable. Undoubtedly the Rapson tyres, on account of the presence of the deflector, are heavier than ordinary pneumatics. This means that they are slower to accelerate and to decelerate. Here, again, however, only careful tests could show the difference.

They must have an effect upon the liveliness of the car, and they must also demand a little extra pressure on the brakes, but in the road trial neither influence was noticeable.

If a tyre is inefficient it must absorb energy from the engine, and this energy will take the form of heat. After a sharp run at speed over a rough road the bad tyre will be much hotter than the good one. Mr. Rapson claims that his tyre runs cooler than an ordinary pneumatic, and one is bound to state that this claim appears to be amply justified. After three miles at a steady "60" the pneumatic of a well-known and respected make on one driving wheel was manifestly hotter to the touch than the Rapson on the other wheel, and on various occasions during my 120 mile run I verified this. The temperature tested was, of course, external temperature only, but even so it implies that that of the inside cannot be excessive; as the heat must be continually conducted to the outer surface during the run, it cannot get away in any other direction.

As a result of my trial of the Rapson tyre I came to the conclusion that it is a thoroughly practical device which does appear to be unpuncturable without involving any notable sacrifice of other desirable tyre qualities. I could not find that it adversely affected the comfort of the car or that it slowed it down to an appreciable extent. It certainly ran cool and was *prima facie* efficient. Aside from the question of first cost, which does not enter into a qualitative test, it seems to combine in a very desirable manner the advantages of both the ordinary pneumatic and the ordinary solid tyres. Only a laboratory test can give quantitative results in regard to tractive efficiency, resiliency, etc., but meanwhile the Rapson tyre certainly "works" well and one has no difficulty in coming to the conclusion that it is here to stay.

[By way of supplement to the foregoing we may add that we have ourselves driven the Rapson-tyred car in question over a distance of some 500 miles. Learning, however, that Captain Aston had driven the same car, his experiences including high-speed tests on the longest straight stretch of road in the south of England, we invited him to furnish his impressions in detail with impartiality and candour. On the question of heat we can definitely confirm his statement, as also his view that, though the deflector should in theory affect resilience in some measure, the effect is inappreciable to the driver. Only a dynamometric test could establish the difference in actual figures; but the Rapson in any case is a pneumatic, and a totally different article from the cushion or filled products which have hitherto been the only attempts at creating an unpuncturable tyre.—ED.]

Tyres smuggled into Hungary from France and Italy have been sold at about £50 each.

There is every probability that racing at Brooklands will be resumed next Easter. The track is at present in a very bad state owing to the heavy R.A.F. lorries that have been ploughing over it, but it is stated that the Road Board will undertake the necessary repairs at a cost of £10,000.

It is estimated that the American automobile year of 1919 opened with a shortage of approximately 2½ million motor cars, and that, even by rushing production, the output during the next six months will fail by about a million vehicles to make good this shortage. It is believed that conditions will not be restored to the normal equipoise of supply and demand for three years, but in the meantime nearly all the leading makers are arranging to double their output for 1920.

TABLOID NOMENCLATURE.

SPORTOSINE.—A motor-car of speedy, sporting character, in which the comfort of the passengers is secured by the fitting of coachwork which entirely protects them from the ill effects of bad weather.

TOUROSINE.—A motor-car having a carriage body of the limousine type specially adapted for touring purposes.

THese two specimens of American tabloid nomenclature are taken from announcements which have reached us from the Cole Motor Car Co., of Indianapolis, of its new series of "all season" cars. We



THE "SPORTCOUPE."

are not in a position to say whether the concern has added anything to the automobile knowledge of nations; and we regret that we cannot conscientiously recommend the inclusion of its condensed phraseology, quaint though it is, in modern motoring dictionaries.

The receipt of these announcements, together with a set of particularly pleasing photographs of the Cole range of cars, however, suggests some comparisons, which are the more odious in this case from the reflections they cast, firstly, upon the relative position in regard to preparedness to meet requirements of the British industry; and, secondly, upon the initiative, enterprise, and business methods in general of that industry.

The advantage of a live publicity department in almost any type of business is scarcely even a matter of opinion, and although some American methods are so far "advanced" as to verge upon vulgarity according to our conservative British standards, the recent experiences of our editorial staff while endeavouring to extract information

regarding next season's models from unready manufacturers make one inclined to condone vulgarity if only the facts be forthcoming. In any case the Cole Co. is not implicated.

It is acknowledged, of course, that American automobile manufacturers had not a tithe of the difficulties to contend with that have beset—and are still besetting—their British *confrères* in the work of picking up the reins at the termination of the war; but a limit must be set to the extent to which this excuse may serve.

A word in regard to this Cole Aero-Eight All-Season Car.



THE "SPORTSEDAN."

Its power is approximately 40, the engine being an eight-cylinder; its price in the States complete in any of the six forms in which it is made is about £700 at the present rate of exchange.

The six types provide further instances of original nomenclature. They are the Sportosine and Tourosine already mentioned, the Sportsedan, the Sportcoupe, the Touredan and the Towncar.

So far as the chassis is concerned, the reader knows as much about it as we do, and maybe more; the coachwork he is equally capable with us of judging from the illustrations. Destructive criticism being the easiest form in



THE AERO-EIGHT "SPORTOSINE."

which to indulge, however, we would draw attention to two points which we most emphatically do not like: the prominence of all hinges, and the triangulation caused by the sloping windscreens. Otherwise the lines are dignified and give an air of robustness, coupled with suitability for the purpose indicated in the names of the various bodies.

LIGHT CAR EXPERIENCES.

I.—The Deemster.

ONE of the commonest criticisms levelled against the average light car is that its wearing properties compare very unfavourably with those of the fully-fledged touring car. Too often this criticism is justified, and it was therefore with a feeling of pleasant surprise that I accepted an invitation to subject to an extended road test a five-year-old Deemster.

As regards design, the machine I tried is identical with the new model, but it had been pressed into service as the works hack after having done duty as a light van. I do not know any other light car that would have behaved as well as this Deemster after having seen so much service.

To the man experienced in the ways of light cars, the most striking features of the Deemster are an exceptionally roomy and comfortable body and very efficient springing, which enables the car to hold the road at speed uncommonly well. The springs are only

AT BURNHAM BEECHES.

quarter-elliptics, which makes their effectiveness all the more surprising.

Next to comfort and ability to hold the road the Deemster claims attention for the unusual power of its 62 mm. by 90 mm. engine, which hangs on to top gear on hills in a most remarkable way. For instance, without any labouring, the car with three passengers climbed the hill from Guildford up the Hog's Back almost entirely on-top gear. The steep bit from Farnham on the way to Hindhead called for second for the greater part of the way, but never for first, and the long drag from Frensham Pond to Hindhead was accomplished entirely on top.

As regards speed the car is much faster than the average member of its class. The particular car that I tried had about 40 m.p.h. as its limit, and I am told that the new models can attain to 48 m.p.h. There are very few other light cars for which such a claim is made, for, even if their engines were capable of pulling them at this speed, they would hold the road so badly that the speed would to all intents and purposes be well beyond their capabilities.

The seat starter mechanism of the Deemster is worth special mention, for it is effective and strikes one as being one of those things that might well be more popular than it is on other small cars. One of the main attractions of the small car to the average purchaser is its low cost. Electric starting adds on an average about 7 per cent. to the price of a small car, but in the mechanical seat starter is offered something which, if not quite so luxurious as electric starting, is much cheaper to instal, and is entirely satisfactory in action.

In the floor boards of the Deemster is cut a slot, through which projects a lever much like the ordinary gear lever, though a little more substantially made. When not in use, the lever lies well forward, and is out of the way of both occupants of the seat. To start the engine, the driver pulls the lever sharply with the left hand, and through the medium of a bevel quadrant meshing with a pinion in the gear box the action gives the engine three or four complete turns.

I found the lever very certain as well as light in operation, and it was certainly an improvement on the old method of having to clamber out of one's seat should the engine be accidentally stopped in traffic. The idea of a seat

starter is not new, but its general acceptance has been somewhat crabbed by the fact that many devices intended to work as seat starters were not up to their work, and so the whole principle fell into undeserved disfavour.

The engine of the Deemster is a four-cylinder monobloc casting with a bore and stroke of 62 mm. by 90 mm., and no engine is allowed to leave the test-bench until it has given 18 b.h.p., although the R.A.C rating is but 9.5.

The chassis as a whole follows conventional lines, the clutch being of the cone type, the gear box giving three speeds and reverse, and the back axle having a straight bevel drive, though a useful feature connected with this component that unfortunately is not quite conventional is that the whole of the differential mechanism can be withdrawn with the axle casing *in situ*.

W. H. J.



A DEEMSTER OUTSIDE WINDSOR CASTLE.



THE 10 H.P. DEEMSTER.



THE MOTORING COMPLEXION.

THREE is no doubt in any woman's mind as to the importance of her motoring outfit, the cut of her coat, the size and shape of her hat, the smart appearance of her accessories in general; but there is another thing vastly more important than any of these, and that is her complexion. Some persons may cherish the illusion that a complexion matters little, if at all. According to them, it is something to be left to chance and circumstances. There can be no greater mistake. The fate of a complexion heartlessly abandoned to the mercy of sun and wind is too awful to contemplate.

A weather-beaten aspect may not be out of place in the open air; indeed, it may have a certain attraction. If it could be reserved exclusively for appropriate occasions, put on and off with the motoring coat, there would be no cause for complaint. Unfortunately, even the most ardent of motorists cannot spend her entire life in the car. There are times and seasons when social amenities claim her attentions, and, thrown into relief by evening dress, the motoring complexion unmitigated and undisguised is no less than a disaster. With

A DECORATIVE TREATMENT OF SUNBURN.

The time may come when a new school of beauty specialist will utilise the effects of sun and wind burn and turn them to decorative account. Futuristic designs in brown or crimson may take the place of jewellery. Tattooed ornamentation may become fashionable, and could easily be simulated by the simple device of exposure to the elements in an openwork blouse of the required pattern. There is no limit to the variety of effects, pleasing or otherwise, to be obtained in this way, and when the next Budget has done its worst we may be driven to replace by such expedients the late-lamented string of pearls and the necklace that is no more. But that time is not yet. Set off by the uncompromising and revealing daintiness of a dance or dinner frock, a weather-beaten face can only be regarded as a blemish. However far removed we may be from the genteel period which considered the slightest trace of sunburn as the sign manual of pursuits unworthy of a lady, we are not sufficiently advanced as yet to accept a skin resembling in texture an old brown boot as a claim to admiration. It may be wholesome, but it isn't good—at least, from the aesthetic point of view. And the woman who says that she doesn't care is either a liar or else is past praying for as an exponent of feminine charm.

COMPLEXION AND THE CAR.

There is no particular reason why the motoring complexion should be worn than any other. As a matter of fact, motoring in this respect has considerable advantages over most other out-door pursuits and pleasures. One can, for instance, neither swim nor play tennis in a veil, nor is that form of protection in favour for golf or shooting.

And in none of these pastimes does one as a rule enjoy the shelter of a roof or a raised hood however bad the weather.

When it comes to a question of protective devices calculated to eliminate the dangers of sunburn, the inventive mind at once perceives any number of fantastic

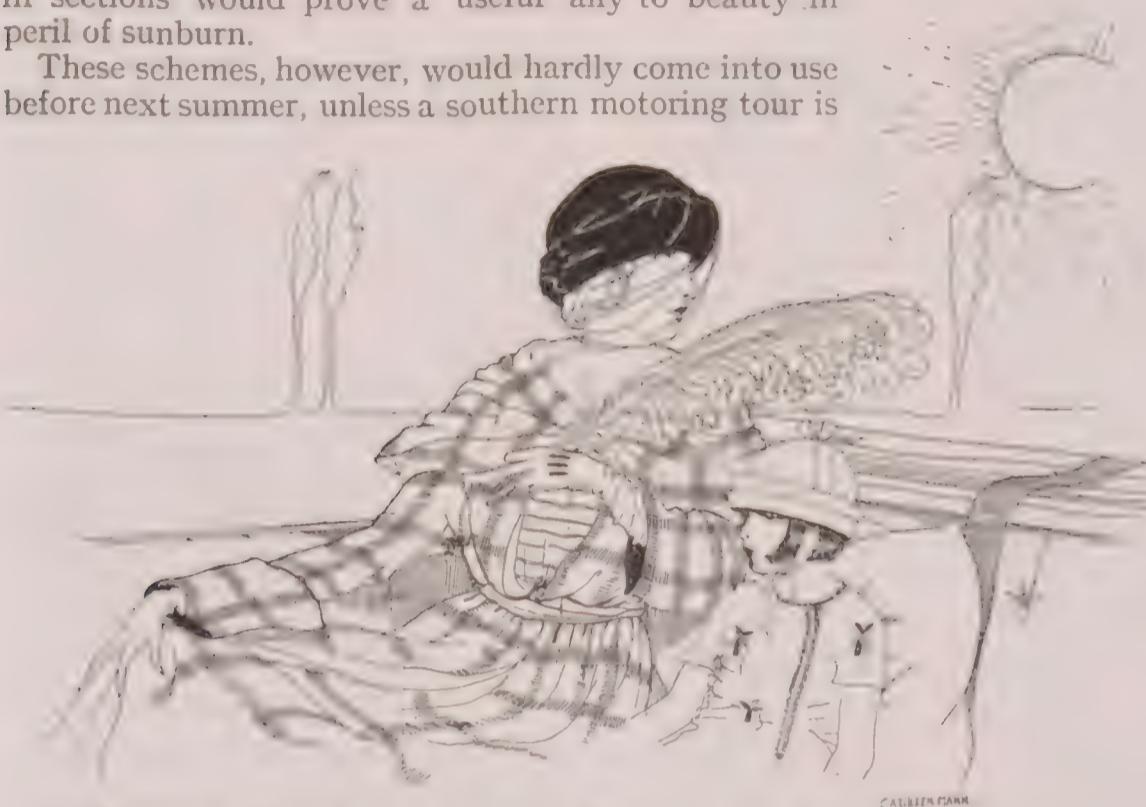


"The occupants of the back seats tell a different story."

the best will in the world a skin ruined by wanton exposure to every brand of weather is but a poor accompaniment to chiffon and lace. The most ingenious efforts of coiffeur and dressmaker will but avail to make its defects the more apparent.

possibilities. One might revive the tiny adjustable sun-shade dear to the hearts of Victorian carriage ladies, and fix it by a clamp to the side or back of the seat of an open car, while for smart occasions, a fan, feathered or otherwise, would provide a picturesque note of practical frivolity. Hats with adjustable brims capable of turning down in sections would prove a useful ally to beauty in peril of sunburn.

These schemes, however, would hardly come into use before next summer, unless a southern motoring tour is



"Protective Devices Calculated to Eliminate the Dangers of Sunburn."

contemplated; for present purposes in this country they are a little like the advice to amateur gardeners which begins: "To make an asparagus bed, trench deeply two years ago." This year's damage from sunburn is in most cases already an accomplished fact, and the problem is not so much how to prevent as how to efface the ravages of too hot a sun. Not a very difficult problem either, as will presently be shown.

WINTER AND ROUGH WEATHER.

Although one's first thought is to blame the sun for a ruined complexion, far more harm is caused by exposure to wind and dust. Winter may not be a dusty season, but autumn frequently is, while wind, the chief enemy, is always with us to a greater or less extent. The seats of the driver and his or her companion in pleasure are fairly well protected, at least, from a head wind and the breeze created by mere speed, but the occupants of the back seats of an open car tell a different story.

Structural devices apart, it is on the veil that one chiefly relies as a help in time of wind trouble, but even the veil is not sufficient in itself. The work of protection begins before the car leaves the garage, and the dressing table is the scene of action. Before starting on a day's motoring, or even for a short drive, the face and neck should be treated with a good cold cream, vanishing cream or lotion.

A light dusting of powder will remove any unbecoming shine, and at the same time form a sort of protective mask which will prevent the pores from becoming clogged with poisonous dust. When the drive is over, a simple application of soap and rain-water will remove the cream and powder, or if the face burns, a cleansing cream, distilled rose-water or eau-de-Cologne will be found preferable. This elementary treatment will not only save the face from both sun and wind burn, but will prevent the coffee-coloured or crimson V on the chest, so hideously unbecoming with a décolleté dress.

AFTER TREATMENT.

When the harm has already been done, there is no need to abandon in despair the attempt to preserve a presentable appearance. Even a hardened coat of tan due to prolonged exposure will yield to a persistent treatment of such homely and harmless cosmetics as lemon juice and glycerine. A teaspoonful of glycerine stirred into the strained juice of a lemon and applied at bed-time will effectually bleach the skin and remove the traces of both sun and wind burn, and only a few applications are usually required. Lemon juice alone would be too severe, and for very delicate skins cucumber juice or elder-flower water may be substituted if the lemon-and-glycerine should

prove irritating, as may happen in a certain number of cases.

In any but the very worst weather these simple devices of preservation and cure are quite sufficient to protect the complexion from the effects of exposure, and enable one, if



"A Southern Motoring Tour."

one wishes, to dispense with the face veil and brave the open road with barefaced impunity.

BOADICEA.

Motor-cycling is usually considered to be essentially a pastime for the young and vigorous, but there is in London an elderly couple who, in spite of the fact that their combined age has almost reached 120 years, have recently become converts to the sport. They have contracted it in a comparatively mild form, however, their mount being an ordinary pedal-driven tandem with an auto-wheel attachment. This interesting combination is frequently to be seen proceeding merrily through the fairly busy main roads of the western suburbs.

USEFUL ACCESSORIES.

A MAGNETIC PETROL GAUGE.

The majority of petrol gauges are unreliable in the highest degree ; it is insufficient to know that when the reading is "half full" the tank is somewhere between a quarter and three-quarters empty. Also, with the increase in the use of pressure feeds, the usual gauge has more than one objectionable feature. It causes a liability to leakage, and complicates the search for the source of the trouble when leakage does arise ; and it is scarcely necessary to say that the product of a gauge leakage is a more or less explosive, and possibly also inflammable, mixture.

In this respect, among others, the Simms magnetic petrol gauge presents some points of interest, for once it is installed it is no more liable to leakage, even through damage, than the filler cap of the tank itself. The head of the gauge is absolutely solid and gives no possibility of communication between the interior of the tank and the outer air. Several types are made, suitable for tanks of various shapes and purposes, but the principle involved is the same in every case. The movement of a float with the rise and fall of the liquid turns a rod, to the end of which is attached a small permanent magnet. This operates within the solid head of the gauge, upon the opposite, outward side of which the dial is situated. The small, freely mounted pointer of the gauge is not connected in any mechanical way with the "works," but is controlled entirely by the force of the magnet acting through the solid head.

These gauges have been very largely used for military purposes during the war, the Austin Russian Army lorries being equipped with them, while they were fitted to Bristol fighters and S.E.5 machines. Now we understand that the Crossley Co. has adopted the pattern illustrated as a standard fitment to its cars. The price of this model is 2*ls.*

THE TAPP PETROL FILLER.

While on the subject of fuel, a new petrol filler, the "Tapp," which has come to hand from Brown Brothers, is worthy of note. It has various obvious advantages over others of its type, especially in the matter of price,

which is 5*s.* 6*d.*, and in its complete simplicity.

It is provided with a cork which fits the orifice of an ordinary two-gallon can. When inserted, with the air inlet seen in the illustration towards the handle of the can, the finger is placed over the air inlet and the can lifted into position for pouring. As soon as the petrol begins to trickle out, the finger is removed and the can may be emptied in about half a minute.



The Simms Petrol Gauge.

If, however, it is desired to stop pouring before the can is emptied, the flow can be arrested immediately by replacing the finger on the mouth of the air tube. Within the enlarged portion of the filler is a piece of fine-mesh gauze to serve as a filter. The filler is quite small and convenient for packing, and should fulfil its purpose admirably.

MICROMETRIC MAGNETO ADJUSTMENT.

A wet afternoon might be interestingly spent in figuring out the principle involved in the Simms flexible magneto coupling, for, simple as it appears, it enables the timing of the magneto to be adjusted down to one-three hundred and eightieth part of a revolution, or less than one degree.

The coupling consists simply of two toothed metal flanges, one being locked to the magneto driving shaft and the other to the engine shaft, with a similarly toothed oil, petrol and acid-proof rubber compound disc situated between them. The latter, by the way, provides flexibility in the drive in addition to serving its purpose in the scheme of micrometric adjustment.

The whole secret lies in the fact that one flange and the corresponding side of the disc have 20 teeth, while the other flange and the other side of the disc have but 19. If adjustment is needed, the coupling is disengaged at the engine side. The magneto flange is rotated in the required direction to a distance of one tooth, while the disc is set back to a similar extent in regard to the engine flange. Thus a degree of advance or the reverse has been obtained equal to the difference between one-nineteenth and one-twentieth of the revolution of the armature—which, worked out, is one-three-hundred and eightieth part.

In spite of the immense advantage given by the possibility of such fine adjustment, its simplicity of construction enables the makers to place the fitting upon the market at a very little more in cost than that of ordinary couplings.

THE CARE OF THE SPRINGS.

Few parts of the car pay better for regular attention than the springs, and, speaking generally, none is more shamefully neglected. Their natural inaccessibility and the inevitable unpleasantness of grovelling among the natural receptacle for all sorts of road dirt may largely explain this ; but while there is a theoretical reason for not lubricating ordinary leaf springs, there is no doubt that springs that are kept well lubricated give much better service in practice than those that are not.



The Tapp Pouer.



The Duco Spring Gaiter.

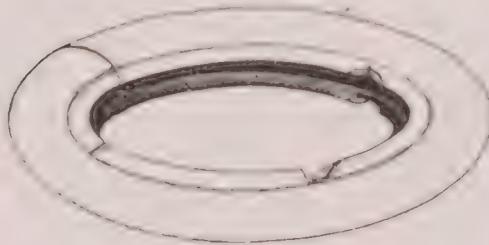
To keep the leaves of the springs always efficiently lubricated without necessitating grovelling is the function of the Duco spring gaiters, and all who have tried them know that they do their duty as well as the most critical could desire. As the name implies, the device consists of a "gaiter" for the spring. It is made of a leather substitute known as "Letherene," as real leather proved to be less efficient as a grease retainer, and the substitute is just as good as a water excluder.

The gaiters are filled with a thin grease and are laced round the springs, which they then maintain fully lubricated—the springs work, in fact, in a continuous bath of oil, so that the benefit of the gaiters is two-fold in that not only are the springs lubricated, but they are protected from injurious road dirt and water. The illustration shows how they are fitted much more clearly than could any written description and also makes it quite clear that the appearance of the springs is considerably improved.

To appreciate fully what the Duco gaiters can do one needs to have them fitted to an old car of which the springing has not improved with age—in other words, any old car. This is the most convincing way of discovering the capabilities of the gaiters; the wisest way of using them is to fit them to a new car, so that the springs will always be kept in the best possible condition, and their "life," in a double sense, be materially increased.

THE VICTOR TYRE VEST.

The use of a gaiter consisting of specially prepared canvas or a piece of old cover from which the beads have been removed has long been a common method of increasing the life of a cover that has worn dangerously thin in parts of the tread. The "Victor" Vest is a development of this idea, and consists of a continuous gaiter to fit all round the outer cover so as to strengthen its casing; the vest lies, of course, between the cover and the tube. It is shaped to fit inside the cover of the specified size, and may



The Victor Tyre Vest.



The Vest
Rolled Up.

be held in position either by solutioning of the flaps or merely by the gripping of the flaps between the beads and the rim. Its makers, the Victor Tyre Co., Ltd., claim for the flap that it will increase the life of a cover by 40 per cent; and they are prepared to supply second-hand covers with the flap fitted, which they guarantee for over 3,000 miles running.

A SELF-LOCKING GREASE CUP.

An effort to overcome the surprising tendency of the average grease cup to get lost without having recourse to complicated or flimsy spring locking arrangements has been made in the production of the cup with which the "Whiteman" patent shackle bolt is equipped. In common with many really useful inventions, the cup relies upon the simplest possible application of an everyday mechanical principle for its operation.



The Whiteman Self-Locking Grease Cup.

"Whiteman" patent shackle bolt is equipped. In common with many really useful inventions, the cup relies upon the simplest possible application of an everyday mechanical principle for its operation.

The principle in this case is that of the wedge, and it is applied by cutting the complete grease cup into two portions. The cut is spiral, and is taken at a very slightly different angle from that of the thread. At the completion of the revolution of the cut the two pieces of metal are separated more or less at right angles to the thread, and this forms the gap seen in the illustration.

The mode of operation is simple. Both portions of the cup are removed entirely from the bolt, and the larger charged with grease. The two pieces are then held closely in contact and started on the thread. When both are engaged, grease is forced down the centre of the shackle-bolt by merely screwing down the top portion, and when sufficient grease has been injected the upper portion is given a slight turn in the opposite direction, thus wedging the whole firmly on the thread of the bolt.

The "Whiteman" shackle bolt, including the patent grease cup, has the further merit of really reasonable price, the cost of normal sizes being 3s. each.

TRIPLEX GOGGLES.

Two new models of Triplex Safety-Glass goggles are now ready for the market. The one which is illustrated herewith is priced at 10s. 6d. and the other at 12s. 6d. Each type alike will afford a greater range of vision than has hitherto been available. The advantages of using Safety - Glass are incontestable; it is surprising, indeed, that anything else



New Triplex Goggles.

should be used nowadays, not only for goggles but for wind-screens or any other of the glass fittings of a car.

AN ALL-METAL TYRE VALVE.

The Burn Tyre Valve Adapter consists of a valve body similar in appearance to the ordinary body which contains the pin and plunger that generally lie at the bottom of trouble. Instead, however, of containing a seating for a rubber plunger, the Burn adapter contains a spring and a metal ball-valve which replace the pin and plunger. Its action is obvious from the sectional illustration, which makes clear the fact that, when the ordinary cap is in position, the pin contained in it is held on to its conical seating, and thus airtightness is assured. When the tyre is being inflated, the ball is driven off its conical seating opposite to that previously mentioned, and so the air is admitted.



The Burn
Valve.

It will be seen that the device incorporates two separate valves and seatings, each of which should be adequate to prevent escape of air. The tension of the spring holding in position the ball is variable by means of a small screw at the base of the adapter—*i.e.*, the projection to which is attached the usual rubber washer providing the seating for the adapter on the shoulder inside the main body of the tyre valve. Although there are two valves, and, as we have said, each of them should be adequate to prevent any considerable leakage from the tyre, the makers recommend that after the tyre has been inflated the cap should be tightened up with a pair of pliers.

A Futurist.



LADY TOURIST: "OH! PLEASE DO, DO BE CAREFUL!"

ALPHONSE: "SOYEZ-VOUS TRANQUILLE, MADAME. ZEE CAR EES NOT OVER ZEE CLEEF—YET!"

THE SOCIAL WHIRL.—BY MARCUS.

LONDON has filled up again. The men back from the moors talk of a marked scarcity of birds, but a welcome freedom from disease, while the real sportsmen express no regrets at the absence of big bags



MOTORING VISITORS TO THE BRAEMAR HIGHLAND GATHERING.

and trust that shooting "over dogs" will never again be ousted by driving to the extent that it was before the war. Yachtsmen can point to joyous assemblages at Burnham, Ryde and Seaview and Fowey; and from every seaside resort have come reports of visitors in record numbers. The first summer holiday-making since 1914 has helped to set the nation properly upon its Peace legs; it has done much to drive away mental and physical after-the-war lassitude; it has heartened the general public to a sober, determined facing of the joint problems of economy and increased output.

London Finding Itself.

And this autumn and winter ought to find

London more like its normal self. The hotels and restaurants will no longer be swamped by "war visitors" ready to pay abnormal prices for whatever is offered them. A survival-of-the-fittest era is setting in, and that will be good for the restaurateurs, and better for the public. Art and music and the drama will have opportunity to acquire a real importance. The new humorist in fiction, for whom publishers and the general reader have waited so long, may possibly arrive. Before the year is out there may be even an improvement in the telephone service.

Uses of a Leisured Class.

I was dining with a man of affairs in a leading restaurant the other night. At the next table was a quartette headed by a middle-aged baronet whose purpose in life has been so far to hunt, to attend race meetings and first nights, and to put in periodical appearances in the Divorce Court. His companions included the heir to a famous title, and a bachelor younger son, who for years has carried on industriously

as a man-about-town. "What's going to happen to this type of man now that the gospel



THE PRINCE OF WALES IN CANADA: LEAVING THE PARLIAMENT BUILDING, QUEBEC.

of national usefulness in peace as well as in war has become such an urgent one?" remarked my friend sardonically, indicating all the occupants of the neighbouring table.



THE RING OF CARS AT THE HIGHLAND GATHERING, BRAEMAR.

"Well, — did well enough in the war, didn't he?" I asked, naming the heir to the famous title. "He was in France most of the time, and got a wound, I believe."

"Hum!" he answered; "my work took me pretty frequently to France, and on most of my visits I saw him dancing at Versailles or at other places in Paris."

Nevertheless we talked ourselves into an agreement upon certain uses of the leisured class. "It was the people who had plenty of time for travelling who caused the railway companies to start sleeping compartments; and that led eventually to sleepers for the third-class passengers," I argued. "The same with winter sports in Switzerland. The moneyed people led the way at St. Moritz and Davos, and from that resulted moderate priced and healthful winter holidays for middle-class folk at a score of cheaper resorts. And believe me, the blasé, sophisticated, leisured section of society will play a part in restoring wit and intelligence to our stage. In the main these people did not go to the theatre during the war, and I cannot imagine them being satisfied with the mediocre stuff that has brought such large profits to the producers in the last three years."

A Really Great Actor.

"They tell me," went on my companion, "that one of the features of the present theatrical season will be Seymour Hicks, produced by Granville Barker. Hicks, as people who really know the stage are well aware, and as he proved by his superfine performance in *Sleeping Partners*, is one of our very finest actors. The rarity with which his work has been checked and supervised by knowledgeable authority has often allowed too much freedom to his restless inventiveness and to his mercurial desire to mould a part to his own fancy. But Seymour Hicks, guided by Granville Barker, should prove stimulating. I am told that each has grown exceedingly interested in the stage gifts of the other, and that Hicks in his new part will offer lovers of good acting another memorable revelation of his powers. Wasn't it Gerald du Maurier who said that if it wasn't for his upper lip, Seymour Hicks would be the greatest tragedian of the day?"

The Social Entente in America.

The Prince of Wales's visit to America is causing many prominent English people to visit the United States. The New York season in November will have a distinctly British flavour. The Duke and Duchess of Sutherland, Lord and Lady George Wellesley, Canon

Carnegie, Lord and Lady Decies, the Duke and Duchess of Roxburghe, Countess of Strafford, and Lady Joan Mulholland, Lady-in-Waiting to Princess Mary, were among those who sailed last month. Many other well-known people have booked passages. The greater the interchange of social visits between England and the United States the better for the two nations, and a surer prospect of a sympathetic handling of the grave international problems that must confront both countries within the next few years. What a happy plan if a succession of our eminent men could visit America! Not necessarily formal visits. Just social visits that would enable the influential people to understand what manner of man typifies this country. And there are persuasive lecture agents in America; and if they could persuade these British visitors to let themselves be seen by big audiences, and explain British ideals to America's eager, intelligent millions, all the better for both countries, and in the long run all the better for the civilised world.

The Boxing Boom.

I suppose that in spite of the political turmoil—the uncertainty whether or not Mr. Lloyd George will be able to ride triumphant over the malcontents, whether Mr. Smillie has lost the confidence of even the hot-heads, whether Lord Northcliffe will bring about a working solution of the Irish difficulty, whether Sir Auckland Geddes can save us from national bankruptcy—the man in whom we are most interested is Joe Beckett, and his prospects of being the first English trained boxer for over twenty years to become heavy weight champion of the world. Every sound judge of boxing asserts that the Beckett-McGoorty contest was the best heavy weight fight seen in this country since Peter Jackson beat Frank Slavin at the National Sporting Club; and the main encouragement for Beckett's future is the improvement he showed in this fight in strategy and boxing science. More than that, the English champion is putting all his soul into his career. No man has been more earnest in his determination to be fit and to improve. I saw him after his victory over that skilful and great-headed boxer, Eddie McGoorty, when he was surrounded by enthusiastic friends, and the night had become one of celebration. The tables were crowded with champagne bottles, but Beckett had not drunk a single glass. Neither does he smoke. And he talked with honest simplicity of his desire to step higher up the ladder of success, and to make life easy for the mother to whom he is devoted.

UPON TAKING A BACK SEAT.

Men who give up Driving.—By MAX PEMBERTON.

THINGS are very much upside down just now, and though that is no position for a car the motorist may justly take note of the fact.

Consider this question of driving one's own 'bus. How many men persist in that engaging pastime? How many pass every year from the driver's seat to a beggarly attitude of leisure in the tonneau behind! We know that the number is large and that the excuses are various.

Some say frankly that there is nothing in driving. They have enjoyed every experience that the highroad can give them, and the growth of adipose tissue and of years abates their enthusiasm. These are they who will tell you that there really is nothing in it. Much better, they will say, to hand over the wheel to the man and to get to the back seats, where it is possible to smoke and even to play bridge. You can see the scenery so much better and you do not get flies in your eye. Such a decadent frankly has become lazy, and will not deny that he never was a genuine roadman. He is mere dead weight, the uninspired passenger in a ship that flies no flag we can salute.

This is one type; but there is another more deserving of sympathy. I refer to the middle-aged man who will tell you with candour that he has no longer the nerve for it. He used, perhaps, to be quite a capable pilot in his youth, quick and dashing at openings and a maker of good averages.

But all that has been put behind him. He had a bit of a smash one day, and, although he merely bent a wing and broke a lamp, the concussion shook up his brain and set him thinking. For days afterwards he drove meticulously, took no openings and suffered the derision of the taxi-men.

In the end he almost had another smash through lingering unduly upon a crossing and inviting the anathema of a 'bus driver. So he concluded that he was losing his nerve, and he handed over the business to John, his man, who secretly had despised his methods for many a long day.

We can do nothing for this good fellow, and certainly we should be wrong to advise him to go on. It is possible for a man to lose his nerve at any sport, and in many of them he is wise to persist until it returns. If he be thrown, say,

in the hunting field, it is possible that he will ride warily for a month; but, unless there be something radically wrong with him, he will in the end recover his old dash and find himself taking his fences with the best of them. So a shot who wings pheasants for a fortnight ultimately may pacify an angry host; while the billiard-player who cannot "pot" will frequently make a good recovery if he cease to look upon the wine when it is red, and remembers the medicinal properties of calomel.

For all these there is hope, but to the shaken motorist we can offer few such consolations. Our duty to other users of the highroad forbids. It is all very well to say that the man may recover his nerve if he go on driving; but what of other people meanwhile? Of all impossible fellows in an emergency, the nervous man is the worst.

It is ten to one that he will do the wrong thing, hesitate to the point of disaster, or persist with the ferocity of the maniac. If he must be loosed abroad as a part of his cure, heaven help us all! Far better to persuade the man to have nothing to do with it for a while—to bathe him in brine and soak him in seaweed, and so tonic him generally that he will return eventually to the fray with the roar of a lion that has scented prey.

Give this man time enough, and he may forget all about his little accident and even laugh at it when he comes to take the wheel again. Yet we have to remember that nobody grows younger, and that there does come a period in the careers of many when they are reminded of the fact unpleasantly.

In this respect, in fact, we must not try to differentiate motoring from other sports. Some men can hunt until they are seventy; others give it up before they are fifty. So, also, we see few great performers at any of the bat and ball games who are more than forty years of age, and we must recognise, whether we like it or not, that nerve is a characteristic of youth and, in the main, lack of nerve a penalty of age.

The greybeards of old ruled States because they had lost their daring, would take no diplomatic openings that were hazardous, and went down the political hills with the chariots in the "first." These men possibly would have been turned out of office had they ridden a side-car on

the Appian Way at forty miles an hour. They were not "leapers"—they cared nothing for an open exhaust. But wisdom remained to them, and for wisdom there is always the landauet or the limousine.

For myself, I like to see old men driving cars, and I have seen a good many in London latterly. The practice speaks of a sportsman and of one who understands what the real charm of the highway is. It speaks also of a real bond between man and machine, one humanising the other and each communicating precious secrets in tongues which both understand. Never would motoring have become the great thing that it is if there had been no lusty knights of the old days to go abroad to adventures that were marvellous themselves to write the epics of discovery. We had real enthusiasm then, and delights of which the "limousiner" knows nothing. Nor were those delights dimmed when the mossy grass was our bed and the kindly stars looked down upon us.

Nowadays, I fear, there is little of the old spirit. We buy gorgeous cars and talk of their bodies rather than their souls. The new recruit is chiefly found in the ranks of the "demobbed," and he is a man who has climbed trees. He will tell you how he drove in France and will give you an illustration in Piccadilly. I met him frequently upon a recent journey to the North of Scotland, and often he put the fear of God into me. While he is with us, it is easy to understand why the middle-aged man has given up the wheel. St. Christopher be merciful to us all!

These fellows will charge us at forty miles an hour, and Heaven help us if we do not take the ditch. It will be years, I fear, before we recover the old amenities. This young generation knows nothing of right sides or of wrong sides, but only of *its* side. One of my friends told me this very day how he was nearly butchered recently in North Wales by a youth who came down a narrow, winding hill at fifty miles an hour and did not even blow his horn. We should make our wills before we set out

nowadays—perhaps go barefooted to the Abbey on a pilgrimage of grace.

Let us, for all that, stick to it while we may. The prudent driver, who does not forget his prudence, who plays the game and observes the rules—he is not likely soon to lose his nerve, nor will a slight mishap undo him. The spirit of the highway is his, and years will not deprive him of his love of adventure. He will ride in the landauet of his friend, but of his own chariot he will continue to be the master.

The CarsTendertothe'Plane.

A PART from the fact that the 25-30 h.p. Crossley car illustrated is one of the new season's models, and has an intrinsic interest on that account, it is significant of a new use of the automobile as a tender to the aeroplane for commercial purposes. It is one of the present disadvantages of the 'plane as a means of transport that it cannot convey goods or passengers from door to door, since it has to have special landing facilities which are only procurable on the outskirts of large towns. The day of huge roof-aerodromes in city-centres may be close at hand, but in the meantime passengers and goods have to be conveyed to and from the aeroplane at the beginning and conclusion of the journey.

In the case of the consignment of goods carried to Paris



A POST-WAR CROSSLEY BRINGS THE PILOT AND CARGO TO A CROSS-CHANNEL AEROPLANE.

by the Handley Page aeroplane in the illustration, these were on their way by air within forty minutes of leaving the London warehouse; the journey to the French capital occupied the usual $2\frac{1}{2}$ hours, and they were delivered at their destination in half an hour from the time the aeroplane landed. Thus they were conveyed actually from door to door over a distance of approximately 300 miles in less than $3\frac{1}{2}$ hours.

LESSONS OF THE WAR.

Its Influence on a Well-Known Car.

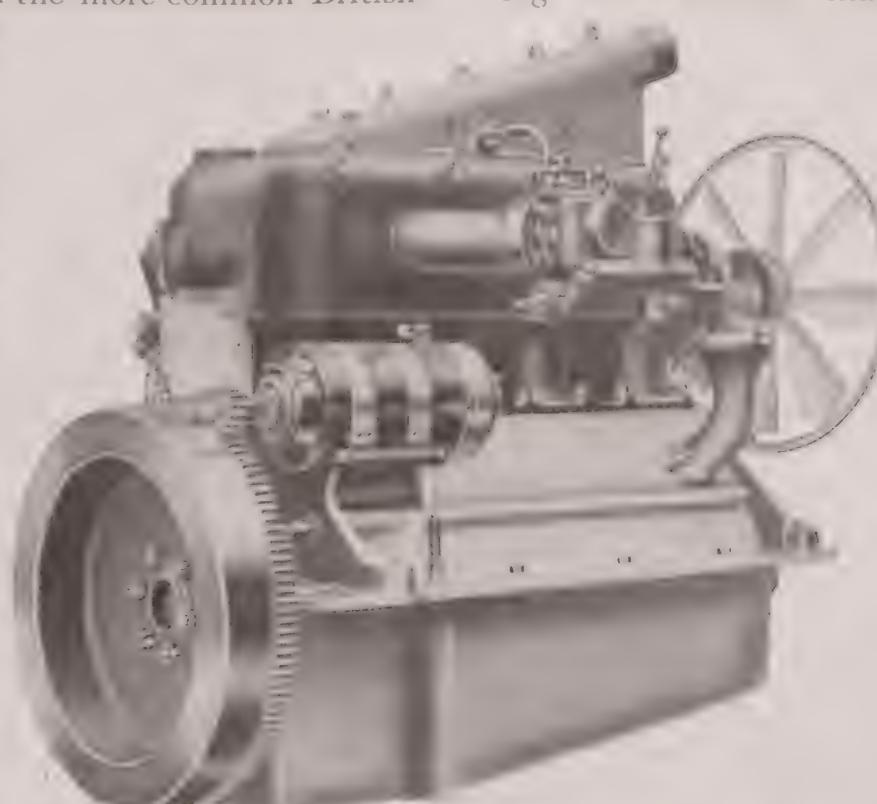
ACERTAIN amount of prejudice has always prevailed against the practice of producing a motor-car by assembling a number of essential details made by firms who specialise in the manufacture of those parts, as distinct from the more common British system of making as many as possible of the components of a complete car under one roof; and when one considers in detail the construction of such a well-known vehicle as the Vauxhall, one can see the reason why. It is more or less of an impossibility to refrain absolutely from going outside one's factory for any part whatever, and even the Vauxhall, of course, depends upon outside specialists for such articles as starting and lighting sets, lamps, and so forth.

So far as the main machinery of the car is concerned, however, the Vauxhall people act on the principle that if you want a thing done well you must do it yourself; and a study of the means by which it is ensured that not only the best, but also nothing but the most suitable, material for each respective part is used would be little short of amazing to a motor-owner who had never before wondered how the car which gave him such good service came into being.

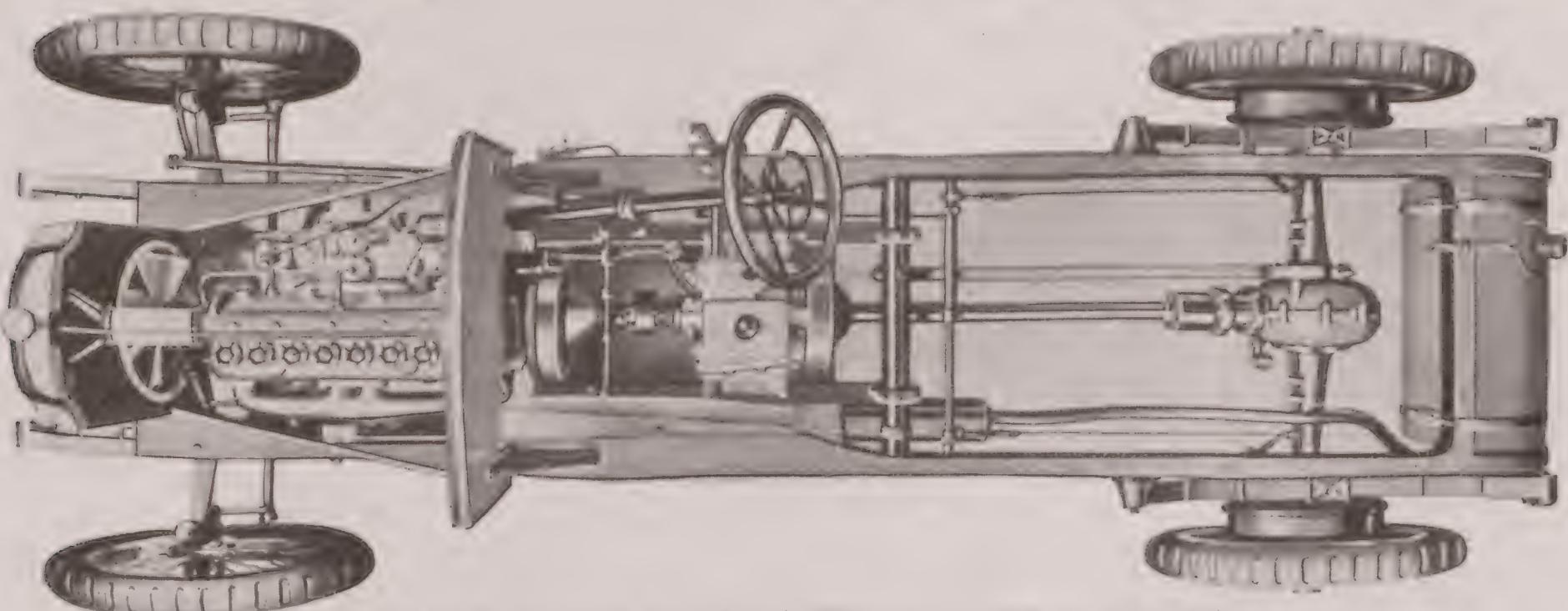
in very great measure for its success upon the road and in the markets of the world. It is not our purpose now to enlarge technically upon the various forms of heat treatment to which the metal eventually forming the Vauxhall chassis is subjected, but a liberal education in the science of metals might be gained from a study of the manufacture of this car.

A point in connection with the Vauxhall which inevitably occurs to one is that, since this vehicle, as everyone knows, was so very largely used in connection with the war on every front, it is probable that the cloud had a silver lining in the shape of the acquisition of valuable knowledge, which could only have been gained, apart from the war, by a considerable expenditure of time, money, and ingenuity. It is true that war service was anything but normal service, and that parts which gave out under the exacting requirements of the former might have performed quite satisfactorily under the latter; but it is only by such

tests to destruction that limitations of strength and usefulness are discovered; and, as a matter of fact, the makers of the car themselves admit that as a direct result of the war they have now a far better chassis



THE 25-H.P. ENGINE (INDUCTION SIDE).



PLAN VIEW OF THE 25-H.P. VAUXHALL POST-WAR CHASSIS.

He would scarcely imagine, for instance, that a most complete and modern metallurgical laboratory formed a pre-eminently important section of the automobile factory, yet it is this department that the Vauxhall has to thank

than the Vauxhall of 1914—which, incidentally, is saying a lot.

Curiously enough, apart from the knowledge automatically gained from the varied reports of the repair shops at the

front, it is in what are usually termed details of refinement that the car has benefited; and in one notable instance, involving that sweetness of running which is so desirable and upon which the Vauxhall firm especially prides itself, a criticism arrived from the War Office authorities to the effect that the car was noisy when the momentum of the vehicle over-ran the engine. Probably a Vauxhall worn through ill-usage or lack of attention was the subject of the criticism, but however that may be, the firm overcame the trouble, and a specially designed spring drive, interposed between clutch and gear-box, which entirely eliminates the objectionable snatching that is an unfortunate feature of many a car under the conditions mentioned, finds a place on the post-war chassis.

Sweetness of running is the last feature which one would expect to be demanded from a wartime, active service automobile, and it is also the most unlikely attribute to be found in what the Americans expressively term a "speedster." Yet it is one of the several equally noteworthy points of the 30-98 h.p. Vauxhall fast-touring model. The main idea in the origination and subsequent development of this car has been that the maximum possible power for an engine of this capacity should be obtained, but that it shall not be obtained at the expense of one single degree of refinement. These two requirements are as oil and water when it comes to reconciling the one with the other in the same chassis, and yet success has crowned the efforts of the Vauxhall company to a remarkable extent.

So far as the question of power and speed is concerned, the description "30-98" needs explaining away to start with. It is capable of a simple explanation, however, the "30" representing the approximate horse-power available under normal conditions, while the "98" serves to indicate the maximum output obtainable on the bench. As a mere suggestion of the capabilities of the car, it may be mentioned that the firm will guarantee that the 30-98 h.p. model, with a single-seater body and, naturally, a higher gear ratio than that of the standard roadster, will attain a speed of 100 miles an hour on the track. As the bore and stroke of the engine are but 98 mm. by 150 mm., it will be agreed that this is a more than remarkable car, especially as the normal petrol consumption is better than 20 miles per gallon.

The other Vauxhall car—only two models are being turned out—is of a nominal 25 h.p., the bore and stroke being 95 mm. by 140 mm., a difference in cylinder capacity of half a litre as compared with the slightly larger "speedster." A feature that is common to both is the retention of semi-elliptic springs throughout, in spite of the wave of favour that has brought the cantilever type to the fore. It is claimed that a properly designed semi-elliptic gives better results than the later pattern, that the latter are apt to give too great a degree of flexibility, resulting in an unpleasant, not to say dangerous, roll when speeding round corners. The Vauxhall spring is built up of a large number of thin leaves, with the idea of gaining great mechanical strength and of generating a certain amount of internal friction, which in a measure eliminates the necessity for shock absorbers.

The cooling of both models also is identical, a belt being arranged to drive both pump and fan, while the system is so designed that in the event of a belt breakage it will "carry on" on the thermo-syphonic principle. An advantage claimed for belts over gears for the pump drive is that if during frosty weather, and in spite of the usual precautions, the impeller should freeze to the casing of the pump, a belt will merely slip on its pulley when the engine is started, whereas with a gear drive breakage would be inevitable.

A White and Poppe carburetter, with an adjustment regulated from the steering wheel, is fitted to the 25 h.p. model, while the 30-98 h.p. chassis is equipped with an aero-type Zenith. The clutch of both is of the multiple-disc type, with dry plates running in graphite, and it is claimed that there is no end-thrust from the crankshaft when the clutch is engaged. The petrol supply is from a 12-gallon tank at the rear, and is pressure fed. A four-speed gear-box is fitted to both models. The 25 h.p. chassis has both electric lighting and starting, but on the speed model it has been decided to forgo the latter luxury for the sake of the saving of weight.

The care—and one might even say ingenuity—that is noticeable throughout the chassis is not confined to the mechanical section of the car, and there are several points of interest in the standard "Kington" touring body which is fitted to the 25 h.p. chassis. The near side running-board has been kept quite clear, the battery boxes having been fitted under the body on each side of the propeller shaft, and constitutes a shallow tool-box, each article of the tool equipment being provided with a special-shaped compartment. The extended scuttle not only gives the pleasing appearance of a long bonnet, the lines of which it continues, but brings the windscreen close up to the steering-wheel, thus allowing the swirling back-draught to escape somewhere between the front and rear seats, instead of directly on to the back of the driver's neck.

The A.G.S. Revived.

After a long period of suspended animation owing to the war, the Automobile Golfing Society has resumed its former activities, and opened the ball on September 17th at Woodcote Park, the fine course attached to the Royal Automobile Club's country house. The main object of the meeting was to carry on the annual series of medal-round contests for the *Autocar* perpetual challenge cup, which had not been competed for since it was won in 1914 by Mr. E. M. C. Instone.

There was a fairly large field of entrants, who included Mr. A. S. Mayes-Smith (an old international), Sir Percival Perry, Colonel C. Jarrott, Colonel E. A. Rose, Colonel Bassett, Mr. Percy Richardson, Mr. H. G. Burford, Colonel Sealey Clarke, Major W. Whittall, Mr. H. M. Hobson, Mr. E. J. Mitchell and Mr. T. P. Searight. Excellent weather prevailed, and the course was in pretty good order. Many of the players, however, were suffering from lack of practice, and the scores generally were not of the most brilliant kind. At the same time it must be pointed out that the R.A.C. links is a very long and difficult one, with a bogey of 80, and requires a good deal of knowing. The majority of the competitors were making acquaintance with the course for the first time.

In the end the winner of the cup proved to be Mr. A. S. Mayes-Smith, with a score of $81+1=82$. The society offered a second prize of five guineas for the runner-up, and this was won by Mr. C. L. Freeston, with $98-14=84$. The next best scores were as follows:

Mr. Percy Richardson	..	..	..	92--5=87
Mr. W. A. Turpin	..	..	..	102--15=87
Colonel W. F. Bassett	..	..	..	102--14=88
Mr. J. Woodall	..	..	..	91--1=90
Mr. E. M. C. Instone	..	..	..	98--6=92

A foursome competition against bogey, for a prize presented by Mr. W. A. Standring, was won by Messrs. Turpin and Whittall, 5 down, Messrs. Woodall and Rotherham being second with 6 down.



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DE DION 1920 MODELS.

HERE was a time when the name De Dion-Bouton, coupled with a few other cars, conjured up thoughts of the pioneer days of motoring. Since those days, other cars and other De Dions have found their ways to the market, and many have "gone west." But not so De Dion! With thirty-six



THE 12 H.P. TWO-SEATER DE DION.

years of experience behind, it is unlikely that a car like De Dion will go under. During the war the French and other cars were under a cloud of necessity, but, following the Darwinian idea that the fittest survive, the De Dion is again a potential factor among us.

Already, in the first number of THE MOTOR-OWNER, there have appeared details of the De Dion 1919 models, together with an illustration of the 20-24 h.p. Coupé, but these 1919 models are by now things of the past. The 1920 models are now in prospect and, although there are no chassis or complete cars actually in existence on this side of the Channel, we can give brief particulars of the intended De Dion models for 1920—models which will be visible at the Olympia show.

There will be three distinct chassis for 1920—the eight-cylinder 20-24 h.p. type, the 14-16 h.p. eight-cylinder model, and the 12 h.p. four-cylinder model. In very early days De Dions were advocates of eight-cylinder engines, and to this opinion the firm has adhered. With long experience improvements are naturally claimed, and the small 14-16 h.p. eight-cylinder engine, with a bore of 60 mm., and stroke of 100 mm., is the outcome of severe tests. The R.A.C. rating of this car is 17.8 h.p., and as a small, though luxurious, car with an interior drive, self-starter and electric light, or as an open car it sounds ideal, though we have not personally tested it.

Differing only slightly, the 20-24 h.p. model, with an

eight-cylinder engine, 70 mm. by 120 mm., is an improvement on the car which was so much in favour with the French General Staff during the war. An alloy of aluminium is used for the pistons in all the new De Dion models, and the minimum of lightness thus afforded has proved satisfactory in tests. Detachable dust-proof plates enclose the valve-gearing of all new models, thus increasing cleanliness and silence. By way of aiding noiselessness of running the cam-shaft, magneto and oil-pumps are driven from the crank-shafts by pinions and gear-wheels. Apart from the dynamo drive through the distribution, all chains have been abandoned, while the old De Dion system of engine lubrication is maintained.

On all the models alike, the carburetter is identical, and all are fitted with a dynamo for the engine-starter and electric light. The dynamo is actuated by means of a pedal fitted at the top of the footboard, and the starting-up is noiseless. The "Victrix" magneto, which during the war was used on eight-cylinder aeroplanes with success, is the product of the De Dion works, and is standardised on all models. "Thermoid"—a combination of asbestos, rubber and metal—forms the central member of three parallel plates of the clutch, which are pressed into engagement by a number of enclosed helical springs. Rear cantilever springs are employed on the 12 h.p. model, three-quarter elliptic springs, anchored beneath the axle, being in vogue on the higher-powered models. At the time of writing no prices can be specified.

As will be seen from the accompanying illustrations, all the models have very smart stream-line bodies, while disc-wheels are used in each case. English-built bodies, it is stated, will be fitted to the cars sold in this country, thus catering for the tastes of motor-owners



THE 14-16 H.P. 1920 MODEL WITH ENGLISH BODY.

AN ENGLISH 6-SEATER
LIMOUSINE-
LANDAULETTE



on this side of the Channel who prefer the home-made article to the Continental style of coach-work. Old motorists who have been familiar with De Dion developments from the earliest days will look forward with especial interest to seeing the 1920 models at Olympia.



THE CLUBHOUSE AT THE PRINCE'S GOLF CLUB, SANDWICH.

THE GOLFING MOTORIST.—By R. ENDERSBY HOWARD.

SANDWICH, in Kent, is one of those happy places, endowed with links of velvety turf and inspiring sandhills, for which the golfing motorist heads his car almost instinctively when the opportunity presents itself for a few days' play beside the sea. It is within a few hours' run of London, and at the end of that excellent road which winds its way to the Royal St. George's course, and from which branches another road to the Prince's course, one is as far from the bustle of everyday life as if one were in the Hebrides.

These two greens, Royal St. George's and Prince's—entirely dissimilar in character and architecture, and each unsurpassed in its own way—are contiguous. They have their devout habitués in every season of the year, and to the inlander they are never a source of greater joy than in October, when his home course—too often possessed of a subsoil of clay—is beginning to suffer from the effects of the autumn atmospheric conditions.

No more than twelve months ago enthusiasts who passed by the Prince's links could have wept at the spectacle of a derelict. Sorrowfully they declared that this once magnificent stretch of golfing country had gone beyond the stage when restoration could be attempted with any hope of success. The grass had grown lank to the degree of shapelessness ; it was very difficult to trace the places where putting greens had been situated. Countless soldiers had tramped the fairways from end to end, year in and year out.

It was, therefore, a formidable problem that faced the club last January, when it regained possession of its property. However, a very large sum of money had been spent on the birth of golf at Prince's in 1906 ; even had a first-class road about a mile long been made so that the clubhouse should occupy its fine position immediately on the sea, with magnificent views right and left.

With all their hearts, then, did the officials set to work to repair the devastation, and it is not too much to say that they have performed something akin to a miracle. The golfer can go to Prince's now with the assurance of finding a course that would have gladdened him in the former era of peace ; the golfing motorist can hie him from Prince's to Royal St. George's, or *vice versa*, and obtain in a day all the variety that mortal could desire in stimulating tests of the game. And only a few miles away is Deal, which, if not quite recovered from its period of service

as a firing-range, still has many of its old holes in splendid condition.

The feature of Prince's is the scheme of diagonal bunkering, which has been brought to a higher pitch of excellence here than anywhere else that I have seen. You can drive over the new end of the cross-hazard if you want to make sure of being safe, but there is always the temptation to try and bite off a bit more, especially as by doing so you render the second shot easier. It is when you accomplish the carry over the farthest end of the diagonal bunker that the hole opens up to you, for then you are end-on to a long and narrow putting-green, whereas the short carry leaves you to approach that green obliquely.

It will be good news for many golfers that important improvements, contemplated for twelve years, are about to take place. When the course was opened, ground lying between the present links and the sea could not be utilised because the turf was too thin and tender. It is now matured. It is, indeed, of the highest conceivable quality for golfing purposes, and when the scheme of bringing it into use reaches fruition, six greens will be within a stone's throw of the sea. Then, indeed, will Prince's be a jewel in that cluster of beautiful courses on the Kent seaboard.

A few weeks ago I met a party of golfing motorists from Lancashire who had hit upon the idea of devoting their holiday to a round of the principal London courses. Avoiding London itself, they were staying for a few days at a country hotel or inn in each district, and playing on the best-known greens in that area before moving to another centre in the outer environs of the capital. What had struck them most was the existence of three such splendid greens as Woking, Worplesdon, and West Hill in a virtually unbroken line, the three covered by as few miles as could accommodate such a number of courses.

Woking suffered in some degree during the war through the exuberant growth of gorse, as well as the shortage of labour, but it was looking very nearly at its best when I was there recently. Worplesdon has recovered from the set-back to its putting greens ; and West Hill, although necessarily neglected for a time, has nearly regained its old excellencies.

All three of these courses escaped the needs of the military and agricultural authorities ; they constitute a very fine trinity for the golfing motorist with a week-end to devote to the game.



1.—THE APPROACH TO THE 14TH GREEN AT PRINCES.
2.—BUNKER GUARDING THE 8TH GREEN (PRINCE'S).
AND THE FAMOUS MAIDEN BUNKER (ROYAL ST. GEORGE'S).
3.—THE 6TH GREEN (ROYAL ST. GEORGE'S).
4.—THE THIRD TEE (ROYAL ST. GEORGE'S).

TYPICAL VIEWS OF GOLF AT SANDWICH.

A HIGH-CLASS NEWCOMER.

THE British Ensign car is unique amongst newcomers in several respects. There is no idea of quantity production in the policy of the makers, the engine is one of high power, and the chassis is to sell at a price that will bring it into competition with the very best of cars now on the market. This being the case the car is one that must be judged by the highest standards, and we may say at once that, after an inspection of the car and a road test, we have not the slightest doubt as to its ability to emerge successfully from the most critical examination.

A six-cylinder engine with a bore and stroke of 102 mm. by 140 mm., mounted in a chassis that is to cost about £1,500 (the price is not yet definitely fixed), ought to give a good account of itself on any road, and this the first Ensign to be made certainly did. Several times the car was brought to a complete standstill by traffic, and on every occasion a re-start on top gear was quite easily accomplished without the exercise of special care. The information that the brake horsepower of the engine is in the neighbourhood of 100, although the R.A.C. rating is only 29·4, is adequate explanation of a hill-climbing and accelerating power that is extraordinary.

As regards the main features of the chassis, the engine alone shows any departure from conventional practice. The aluminium cylinders are cast in pairs—*i.e.*, there are three separate castings—and are fitted with cast-iron liners, and the detachable head for the six is a single casting. Carried in this head are the valves and the overhead camshaft, the cams of which operate the valves through rocker arms and which is driven through worm gearing by a vertical shaft, in turn driven from the crank-shaft also by worm. Lubrication of the camshaft is adequately provided for, and oil is fed to it under pressure by the general lubricating pump situated in the forward end of the crankcase. Normally the whole of the camshaft

and valve mechanism is enclosed by a readily detachable aluminium cover which gives to the engine a very neat overall appearance.

Cooling is by pump-circulated water through a radiator of imposing design, which contributes very largely to the general elegance of the bonnet. An interesting feature connected with the radiator is that the blades of the fan—which incidentally is gear-driven—are set at a receding angle to the spindle to enable the accommodation of the fan to be brought well inside the Vee of the radiator sides.

Ignition is on the dual system—*i.e.*, by battery and coil as well as by magneto—and two sparking plugs are provided in each cylinder. Carburation is by a standard instrument which is attached to a long induction pipe surrounded by a hot-water jacket.

Clutch and gear-box form a single unit with the engine, though any of the three components may be dismantled without necessitating interference with the other two. The clutch is of the disc type—Ferodo and steel discs—and we can certify from experience that it is unusually light in operation. The gear-box provides three forward speeds and reverse, and all the shafts, except the reverse, run on ball bearings.

From the gear-box transmission is by a cardan shaft enclosed in a torque tube to a spiral bevel rear axle, in which aluminium is used as much as possible to reduce unsprung weight to a minimum. All brakes operate on rear wheel drums. The

springs are cantilever in the rear and semi-elliptic in front.

An interesting feature in this very fine chassis is the adjustability of all the controls, including the steering column (for rake) and the gear and hand-brake levers. When the gear lever needs a special angle owing to some special body requirements, the gate through which the lever works may be altered to any angle without causing difficulty as to the meshing of the gears.



FRONT VIEW OF RADIATOR AND BONNET.



THE 25 H.P. SIX-CYLINDER ENSIGN.

GEAR-BOX MYSTERIES.

A Full but Simple Explanation.

NOT the least important effect which has followed upon the enormous expansion of the motoring movement is the fact that tens of thousands of men who never before they learned to drive a motor-car took the slightest interest in technical matters have become, as is evidenced by the returns of the Patent Office, not only enthusiastic on such things but have actually acquired the status of incipient engineers. It must be conceded that this constitutes a serious reproach to our educational system, for these people must have been offered a great deal of information on mathematics, geometry, and general elementary science when they were at school. This, however, they rejected because it was not served up in an attractive manner. Yet, later on in life, they have greedily absorbed it simply because it was incidental to the fascinating exercise of driving and looking after a motor-car.

It may be taken for granted that the most valuable and informative experience is provided by the attempts which are made to rectify a mechanical failure. Years ago I knew a grave solicitor,

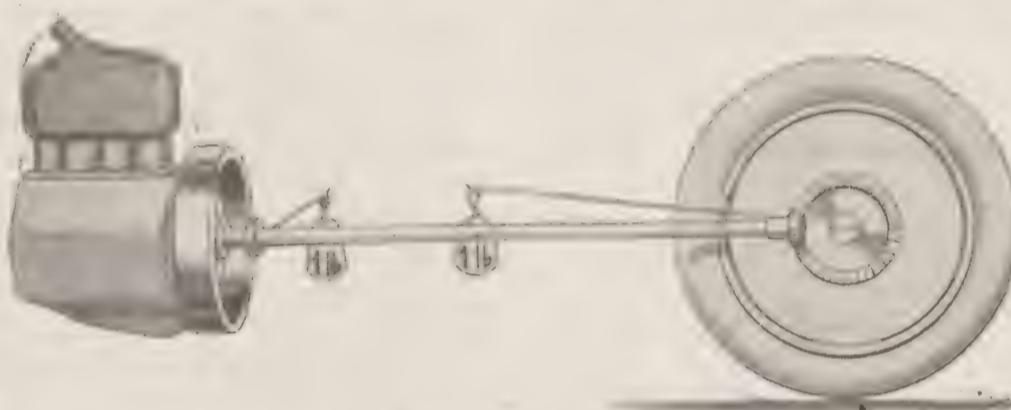


Fig. 1.—Diagram illustrating the turning effect of the motor on a car without a gear-box.

On the other hand, failure to appreciate exactly how the gear-box works prevents the majority of motorists from making the best use of their gears, so that they do not take advantage of the variable ratios that are to hand until they are practically forced to do so by the slowing down and threatened stoppage of the car. Furthermore, it is quite safe to say that, out of every hundred drivers, at least ninety-nine change "up" too soon and change "down" too late. That is most probably because, whilst they have a rough idea of what the inside of a gear-box looks like, they do not quite realise the fundamental principles upon which it works or why it is there. For instance, I have known an otherwise knowledgeable man absolutely refuse to believe that a certain car could be faster on the level on third gear than it was on fourth.

This article is written in the hope that it will dissipate any fog that is still in the neighbourhood

of the gear-box by trying to explain, at one and the same time, why the gear-box is needed and how it works.

A railway locomotive does not require a gear-box because in a steam engine the power given out simply depends upon the pressure in the boiler, and is independent of the rate at which the crank-shaft is revolving. A petrol engine requires a gear-box because its power is strictly dependent upon its speed of revolution, and within reasonable limits is directly proportionate thereto. Thus an engine giving 10 h.p. at 500 r.p.m. will give, as nearly

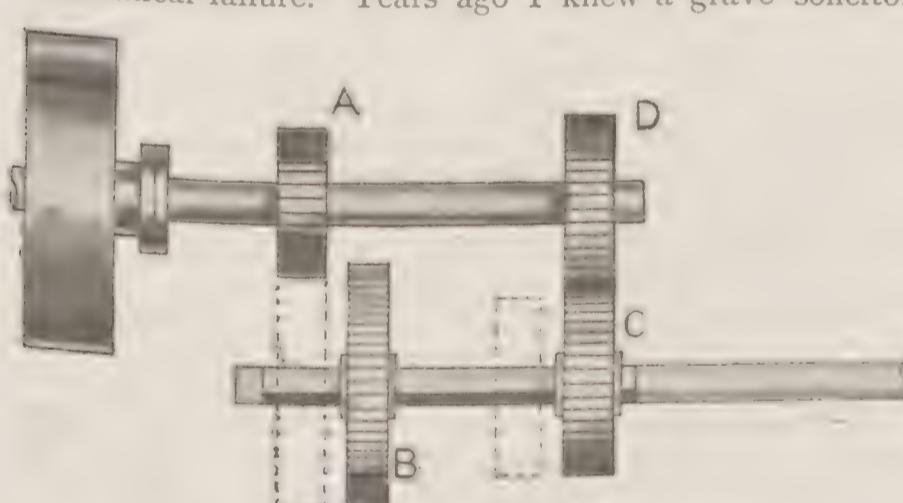


Fig. 2.—A simple form of two-speed gearing.

with very little scientific leanings, who within a few months of acquiring a car had become an accepted authority (local) on the defects of electrical ignition, and I make no doubt that there are to-day men in the boot trade, or even in the R.A.S.C., who are qualified to lecture soundly upon carburation in all its branches.

Now the average motorist has had far more trouble with his engine than he has ever had, or is likely to have, with his gear-box. Hence he knows really a great deal about the former and little or nothing about the latter. It is a thing that very rarely goes wrong, and therefore he does not worry about it. The manual operations of changing gear are so elementary that they can be taught in a few moments, and a few days' practice is sufficient for the acquisition of reasonable skill.

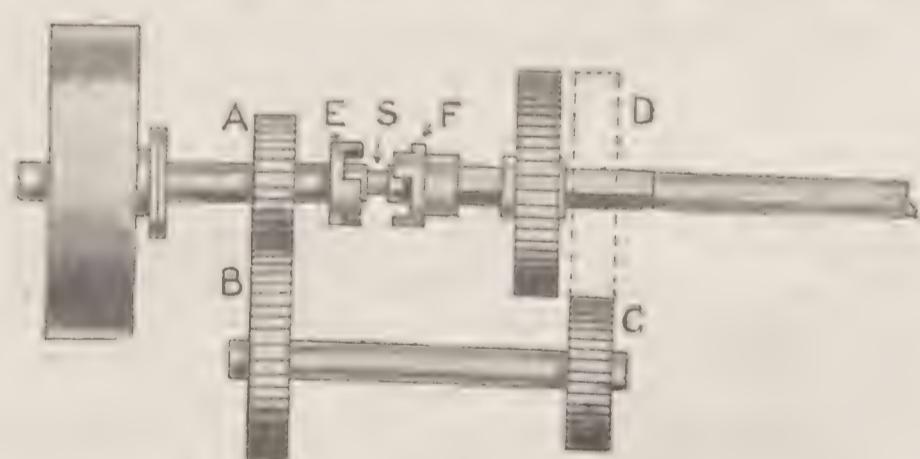


Fig. 3.—The "direct drive on top."

as possible, 20 h.p. at 1,000 r.p.m. and 30 h.p. at 1,500 r.p.m. At very high speeds this regular rate of increment will fall off owing to the difficulty of completely filling the cylinders with gas.

This disadvantage of the internal combustion engine introduces practical disabilities into a motor-car which we will now consider on the supposition that we have a motor-car without a gear-box, of which a diagrammatic repre-

sentation is given in Fig. 1. But first of all it must be pointed out that, owing to the undesirability of using extremely small road wheels, which would be susceptible to the smallest irregularities in the road surface, and which would involve prodigious wear upon tyres, a primary gear reduction is required between the engine and the road wheels. This is provided in the bevel or worm gear of the back axle.

Let us now suppose that, for the sake of example, 10 h.p. is required (neglecting transmission losses—and this reservation holds throughout the argument) to propel our hypothetical motor-car along a dry level road at 20 miles per hour, and that the engine gives this h.p. on full throttle at 1,000 revolutions per minute. The chassis is fitted with 820 mm. by 120 mm. wheels, and a simple calculation will show that, if it does 20 m.p.h., the wheels will revolve at about 200 r.p.m. Such being the case, the back axle gear-ratio is made to give a reduction of five to one, so that the crank-shaft revolves five times whilst the wheels revolve once.

So long as the road remains level and dry, and—what is of importance—the car is already under way, it has considerable speed scope without a gear-box at all. If at 40 m.p.h. the power required for propulsion—that is to say, to overcome the traction and air resistance of the vehicle—is 20 h.p., the engine can still supply it by being allowed to revolve at 2,000 r.p.m., and, lower down in the scale, for 10 m.p.h. 5 h.p. is wanted and is available inasmuch as the engine gives this output at 500 r.p.m.

If the propulsive power required by the car were always proportional to its speed, matters would be considerably simplified. As it is, such is not the case. As road speed is increased, air resistance for one thing is disproportionately enhanced, and hence a point, say 45 m.p.h., is attained at which the power called for is more than the motor can deliver and more than is available at 2,250 r.p.m. Hence this speed is more than the car can reach. Similarly at the other end of the scale, when the car is at a dead standstill, the power required to overcome its inertia and start it moving is considerable; yet, the proportional speed of the engine being 0 r.p.m., the power outlet is also clearly nil. It will be borne in mind that a railway truck, when once it is on the move, is quite easily "kept going," but that the effort required to start it from rest is a big one.

Gearing is only a special application of the principle of the lever. Turn to the sketch of the car in Fig. 1 and imagine that the turning effect of the engine is equivalent to a weight of 1 lb. suspended at the end of a horizontal radius of the flywheel, which is, e.g., supposed to be 2 ft. in diameter. The radius is therefore one foot. Such a turning effort, passed through the gear reduction of the back axle, is equivalent to a weight of 1 lb. hung on to a 5-foot radius struck from the centre of the back wheel. The turning effort so promoted may be sufficient to keep the car going at anything from 5 to 40 miles an hour on the dry flat, but is insufficient for starting it from rest, as well as for enabling it to climb hills.

In either case what we want is an increased "torque," or driving effort, which in turn means more power from the engine. This we can obtain by making the cylinders very large indeed, so that the required power is always available for starting purposes, and also for climbing all ordinary hills. This was the principle adopted in the "gearboxless" Sheffield-Simplex of some years ago, but such a way of overcoming the difficulty is crude, besides being expensive both in first cost and upkeep and calling for some little skill on the part of the driver in managing his clutch.

Another alternative is to increase the turning effort on the driving wheels, whilst retaining a small engine, by decreasing the speed at which they revolve relatively to the crankshaft. Just as in the lever, what we "gain in power" we shall have to "lose in distance." We do not increase power thereby—neither gear nor lever can do that—but we apply it to better mechanical advantage.

When a car meets a hill and begins to ascend it, the engine has to overcome not only the resistance of the roads but also the effects of gravity, as climbing the hill is tantamount to lifting the car vertically at a rate proportional to the forward road speed and the angle of the gradient. The car figured in the diagram will be unable to tackle any hill because the turning effort of 1 lb. at the end of a 5 ft. lever is insufficient to deal with any but road resistance. What is wanted, let us say, is double as much leverage.

To get this we shall want a gear reduction between the engine of 10 to 1; or, if the hill is very steep, we may even want 20 to 1. If we make this change in the back axle we shall certainly have a car that can climb almost anything, for, with 20 to 1, we shall have plenty of excess of power over that required for overcoming traction resistance. For instance, at 2,000 r.p.m. the engine will be giving 20 h.p., but the speed will only be 10 m.p.h., calling for no more than about, say, 5 h.p. A car with such a gear ratio would manifestly be absurd, for with the engine roaring round at 3,000 r.p.m. we should only have 15 m.p.h. on the level.

Since in some circumstances we want the original gear of 5 to 1, and in others we want 10 to 1, and in others still 20 to 1, we must leave the fixed back axle ratio alone at 5 to 1, and introduce a variable ratio device between axle and engine.

Let us begin modestly by having two gears, namely 5 to 1, and 10 to 1. A simple way of doing this is shown in Fig. 2. Instead of the propeller shaft forming an extension of the crankshaft it lies parallel to it, and both are furnished with two pairs of gear-wheels, of which A and C are fixed to the engine shaft, whilst B and D are mounted upon a squared portion of the propeller shaft so as to turn solidly with it, but to be able to slide along it under the actuation of the gear change-lever. Of these pinions, A is 4 inches in diameter and has 16 teeth, B is 8 inches in diameter and has 32 teeth; C and D are 6 inches in diameter, and each has 24 teeth.

In the position shown in the diagram Fig. 2, the gear is 5 to 1 as before, due to the back axle reduction. C and D are in engagement, and therefore the propeller shaft and the crankshaft travel at the same speed (though in opposite directions) C and D being the same in diameter. If, however, as shown in the dotted lines, D is slid out of engagement with C, and B is slid into engagement with A (accomplished by a single movement of the gear lever) the propeller shaft will now be driven at half the crankshaft speed, A and B giving 2 to 1 reduction. This, multiplied by the axle reduction of 5 to 1, gives a total reduction of 10 to 1. B and D are arranged so that they both slide together, and one does not enter into engagement with its driving pinion until the other is out of engagement.

This simple form of gear-box was invented by Panhard many years ago. It can be made to give any desired number of gears, but it is objectionable because the power always has to be transmitted through a pair of pinions, by the friction of which a certain percentage of power is always lost; and, secondly, because these pistons are noisy, even on the top gear. To overcome these disadvantages the system of "direct drive on top" is now nearly always used. The principle of this is set out in Fig. 3.

The propeller shaft is not solid with, but is in the same axial line as, the crankshaft, and the two are maintained in correct position by a spigot bearing shown at the point S. This allows the two shafts to rotate independently of one another. A is a pinion of 16 teeth on the crank-shaft extension, and D one of 24 teeth on the propeller shaft extension. B and C are respectively pinions of 24 and 16 teeth fixed to a third shaft, called the "lay shaft." A and B are always in mesh with one another,

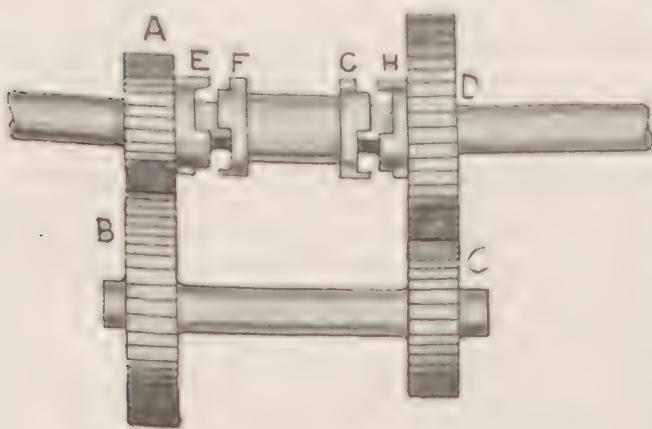


Fig. 4.—A Constant Mesh Gear-Box.

but D can be slid into and out of engagement with C, as shown in the dotted lines. At S is an arrangement of dog clutches, E and F. When these two are united the two shafts carrying A and D can revolve as one solid shaft.

To get the gear of 5 to 1, or "direct top," D is kept free of C, and F is engaged with E. In these circumstances the drive is exactly similar to that shown in Fig. 1, the crankshaft and propeller shaft being to all intents and purposes one continuous shaft. The pinion B is driven by A, but B and C and their layshaft merely revolve idly and have no power to transmit.

To get the lower gear, E and F are disconnected and D is slid into engagement with C, as shown in dotted lines. Now the reduction of gear between A and B is $1\frac{1}{2}$ to 1; therefore, if the engine is doing 900 r.p.m., the lay shaft is only doing 600 r.p.m. Power is transmitted from A to B and thence through C to D, and so through the propeller shaft and the back axle. The reduction between C and D is again $1\frac{1}{2}$ to 1, so that at 600 r.p.m. of the lay shaft the propeller shaft is only doing 400 r.p.m. Thus the propeller shaft is reduced $2\frac{1}{4}$ to 1 in relation to the crankshaft. The final reductions to the road-wheels are therefore 5 to 1, and 11.25 to 1. With a gear of this type we cannot get 5 to 1 and 10 to 1 owing to the fact that the square root of 2 is not a whole number. A little thought will make this clear.

In the above described boxes the gears have to be slid into mesh—a matter that requires some little skill and judgment and exposes the teeth to damage, under which their efficiency as transmitters of power is likely to suffer. In Fig. 4 a variant gear-box is shown in which the pinions are always in mesh and their engagement is effected by dog-clutches. Everything is the same as before, except that D is free to rotate in its shaft, but can be locked thereto by dog-clutches G and H, similar to E and F already described. The sleeve carrying F and G slides upon a

squared or fluted extension of the propeller shaft. A and B are called the "constant mesh" wheels.

It will be noted that in the direct drive type of gearbox, whether constant mesh or not, when an indirect ratio is employed the power has to pass through two pairs of pinions, namely A to B, and C to D, whereas in the Panhard type only one pair is in operation. This double reduction means a slight extra loss in power on the lower gears, but it is made up for by the superior efficiency of the direct top-gear drive, in which no pinions at all transmit power. This also makes for silence.

So far we have only considered gear-boxes giving two variations in ratio. This number, however, is not generally considered sufficient, for this reason: The top ratio must be equal to reasonable speeds on the level and up slight hills, say a maximum gradient of 1 in 15. The bottom gear must not only be capable of dealing with steep hills when taken on the run, but must also be such that the car can be started upon such steep hills, too. Thus the speed on the level on bottom will be very low, and it will also be disagreeably low upon hills which are just too steep for the car to ascend on top. Hence at least one intermediate ratio is demanded, but the majority of car designers prefer two, making four in all.

Fig. 5 gives a typical three-ratio box arrangement, the Angus-Sanderson to wit. Here, it will be seen, the layshaft embraces four pinions, all running solid with one another. The smallest of these is part of the reverse gear, which will be explained later. The nomenclature is as follows: Z is, for all practical purposes, an extension of the crank-shaft, loosely connected through the spigot bearing S with the shaft X, which is in turn connected through a universal joint

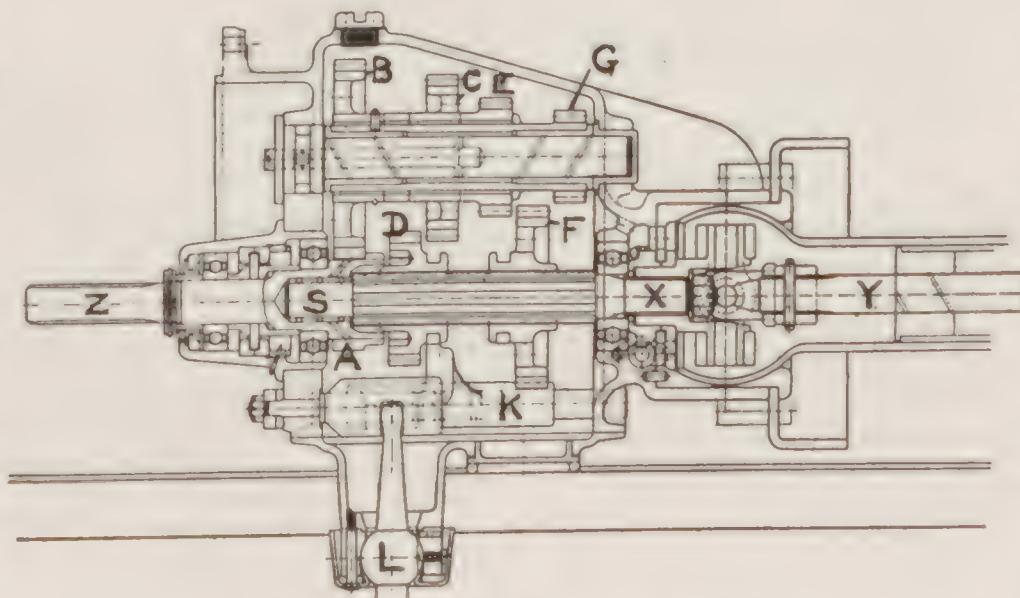


Fig. 5.—A Typical Three-speed Arrangement.

with the propeller shaft Y. A is the driving constant-mesh pinion, B the driven constant-mesh pinion. C is the second-gear layshaft pinion, D the second-gear gear-shaft

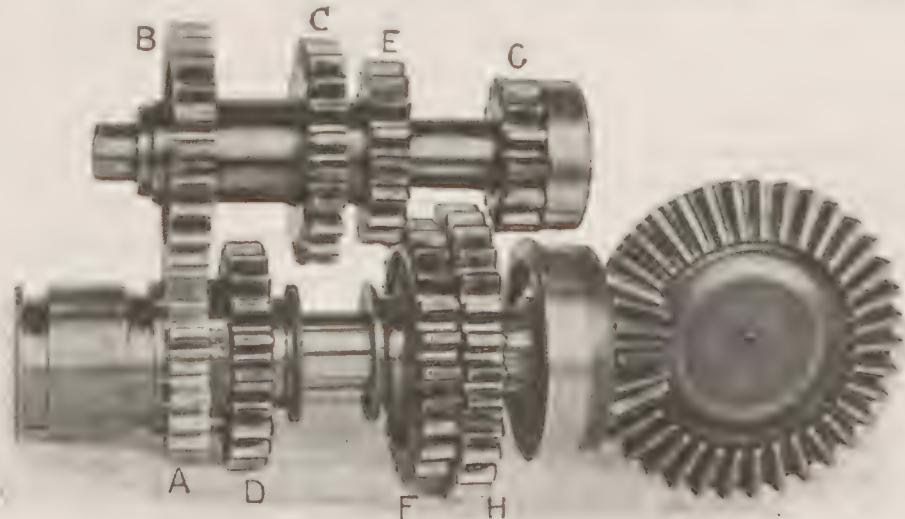


Fig. 6.—A Simple Four-Ratio Gear-Box.

pinion. E is the first-gear layshaft pinion, F is the first-gear gear-shaft pinion. G is the reverse pinion on the layshaft. K and L are portions of the gear-changing

mechanism, controlled by the hand lever. The gear-box in the diagram is shown in neutral.

For 1st Gear.—F is slid into engagement with E. The drive is then through A to B, thence through E to F, and so to X. Total gear ratio, including back axle gear reduction, 13·8 to 1.

For 2nd Gear.—F is slid out of engagement with E, back to where it is shown in the drawing. D is then slid into mesh with C. Drive is then through A to B, and thence through C to D, and so to X. Total gear reduction, 6·8 to 1.

For Top Gear.—D is slid out of mesh with C. Inside D is a dog clutch, or internally cut pinion, which, when D is slid towards S, engages with a corresponding clutch attached to A. When D and A are engaged, Z runs solid with X, and therefore a direct drive is obtained, during which the layshaft runs idly. Total gear reduction, 4·2 to 1.

Fig. 6 shows a simpler four-ratio box, as used on the A.B.C. motor-cycle. In this case no reverse is fitted. The sequence of operations is as follows. *Bottom gear*—A meshed with B, and G with H. *2nd gear*—A with B, and E with F. *3rd gear*—A with B, and C with D. *Top gear*, direct—A with D, by dog clutches; layshaft running idle. This is the position shown in the photograph.

For the reverse ratio the plan always adopted is to mesh a pinion on the gear-shaft with a second pinion on a special shaft of its own, and this in turn is meshed with a pinion on the layshaft. The drive thus passes through no less than five pinions, counting the constant mesh.

Having briefly described the general arrangement of the gear-box, let us consider its application with particular regard to the desirability of changing early and showing that on a lower gear a car can often be faster than on top. Let us suppose that we have four gears giving respectively 10, 16, 25 and 35 m.p.h. at 1,000 r.p.m. of the engine, and suppose that at this crankshaft speed 20 h.p. is being delivered. Again, suppose that we come to a gradient which the car will just do on top at 30 m.p.h.; that is to say, on this gear it requires, roughly, 17 h.p., the engine turning at about 850 revs.

Now 30 m.p.h. on third gear requires 1,200 r.p.m., at which the h.p. output is, roughly, 25 h.p. That is to say, we have 8 h.p. in hand which can be used for accelerating the speed up to, say, 40 miles an hour, or even more. If we like to let the engine turn over at 2,500 r.p.m. we can do it on second gear at 40 m.p.h. Similarly, if a car is very highly geared on top, it may prove to be faster on the level on third than it is on fourth, and some racing cars have been deliberately made in this manner in order to take advantage of down gradients. The ultra-high top gear (in this case indirect) has also had its advocates for touring, as it means that for moderate speeds on the level the engine need only " tick over."

If we want to climb hills really quickly, all we have to do is to bear in mind that the time at which we change down depends upon what the car can do, with the engine full out, on the next lower gear. Supposing on third we can just reach fifty on the level, we can afford to change down to third when the gradient reduces the top speed to fifty. If on second we can do 35 on the level, we shall change down at 35, so as to keep the engine always at its maximum revolution, and so giving its maximum power. We need not go quite to this extent in touring, as in the interests of durability it is desirable to keep a few hundred revolutions in hand, but in this instance it would be quite safe to make the down changes at 45 and 30 respectively.

This point is insufficiently appreciated. Most drivers

persist in holding the top gear in until the engine is simply gasping. Not until then do they change to third, but already the revolutions have fallen so low that even on the lower gear the engine still has to struggle, and probably a second change is necessary. Yet with an early drop into third whilst the car had still plenty of "way on," and the engine was spinning strongly, they would in most cases easily surmount the hill with a single gear change only.

In like manner few realise that a change to a lower gear gives one a tremendous facility for acceleration. If, for instance, you are hanging behind another car at, say, 25 on top, and you want to pass it quickly, you can but do it by dropping into third, which will give you a very rapid acceleration up to, say, 35 m.p.h., and you are past in a flash, whereas if you held on top it might take you a quarter of a mile to get in front.

A Cheap Light Car.

THE majority of British cars which are making their *début* this year are of the medium or light variety, and notable in the latter class, both on account of its low price and the fact that it is air-cooled, is the "Speedy." This little vehicle is naturally especially attractive at 110 guineas at a time when even a motor-cycle and side-car may cost anywhere from £150 to



THE 8-H.P. SPEEDY.

£200, and when the most modest of four-wheeler cannot be obtained under about £300.

The Speedy is reminiscent of the Bedelia and similar machines in pre-war days, in that it depends for the final drive to the rear wheels upon two belts, but it is five years later in design in many respects.

The engine is an 8 h.p. J.A.P. V-type twin, with a chain drive to a Chater-Lea two-speed gear-box through a 9 in. leather-to-metal cone clutch. Thence the power is again conveyed by chains to a countershaft carrying the two belt pulleys.

Domed wings, electric lighting, lamps and a jointed wind screen are fitted at the price named. The tyres are 650 mm. by 65 mm., and while it may be thought that these are on the small side, it must be remembered that the weight of the complete car is stated to be under 6 cwt. Petrol consumption is estimated to average 60 miles per gallon.

Noteworthy points, by the way, in an otherwise comparatively orthodox chassis, are the employment of the countershaft belt pulleys to serve as internal expanding brakes, and the use of ash for the side members of the chassis frame. The four quarter-elliptic springs are attached to the ends of the side members by brackets, so that the wood is not weakened by perforation, while fore and aft tubular cross-members are fitted.

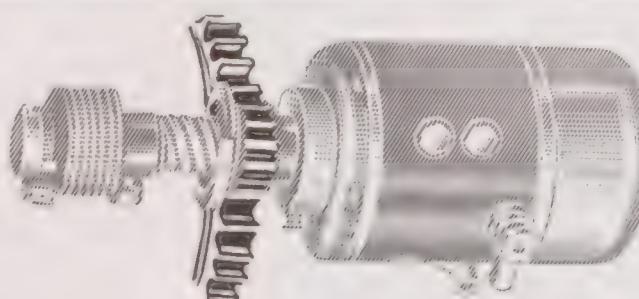


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Press a button and sail away*



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DYNAMO LIGHTING EQUIPMENT
"MAKES ANY CAR A BETTER CAR."

This drawing of the starter shows it with its toothed wheel in engagement with the toothed periphery of the engine flywheel. The engagement is automatically made when the starter switch on the dashboard is operated.

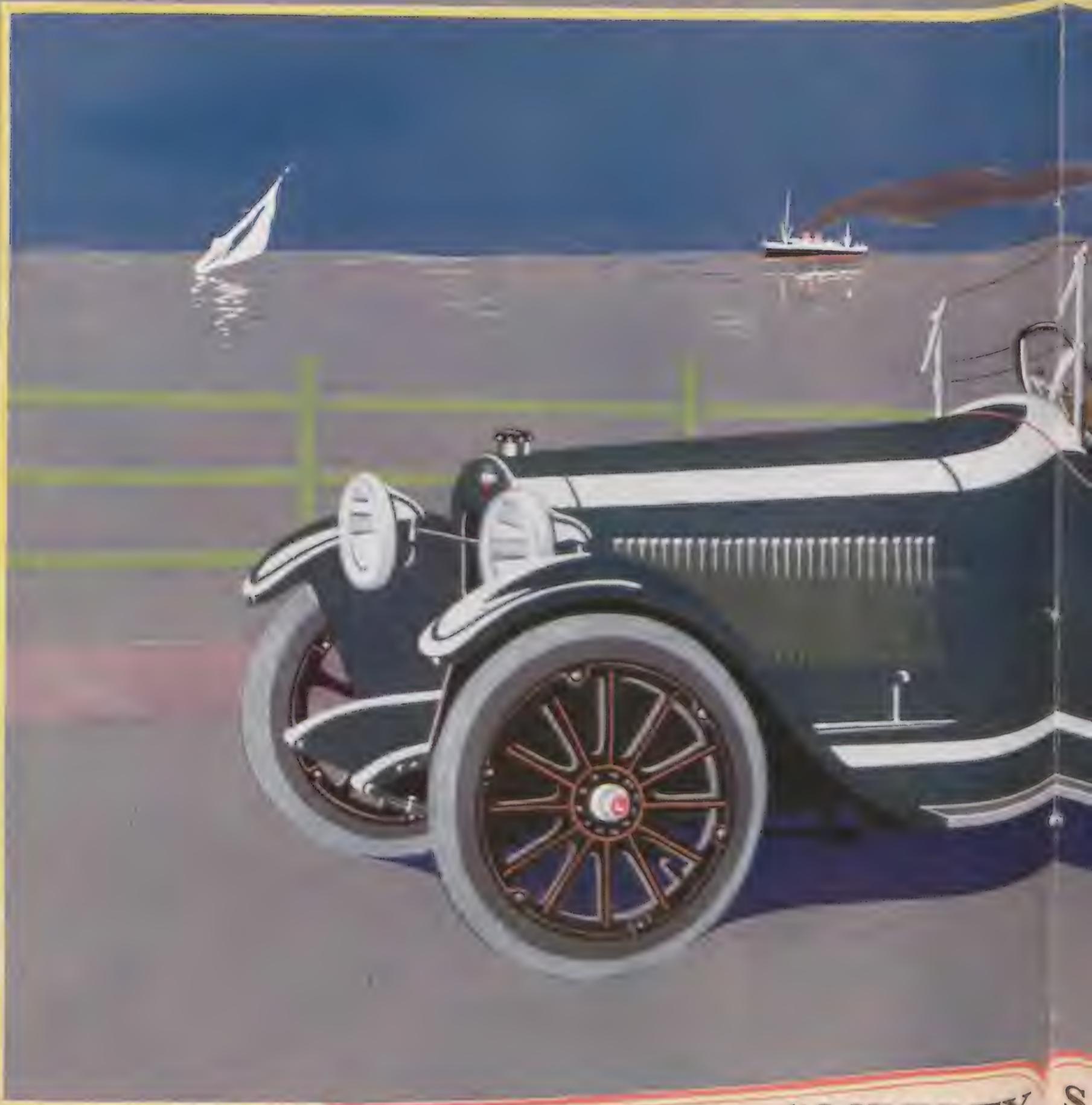


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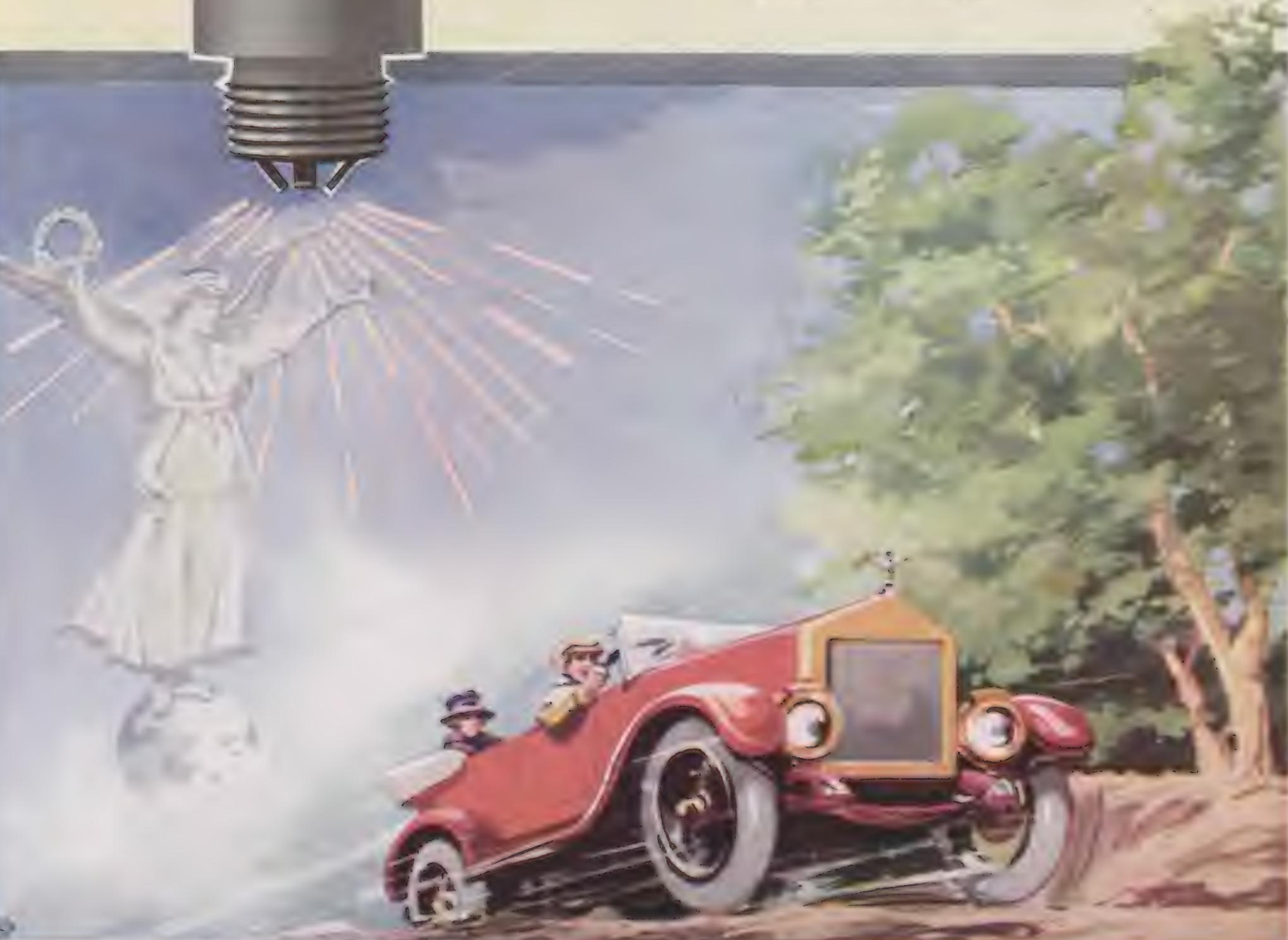
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A WOMAN'S NOTE-BOOK.

By CHRISTOBEL NICHOLSON.

AS I write the sun scorches down on my blameless head. As you read your equally blameless head may be shivering in the chill blast of winter. It behoves me to write something seasonable, therefore I must employ Christian Science, concentrate on an iceberg, and do my best.

WITHOUT EXCUSE.

Frost is one of the motorist's chief bugbears because it involves a certain amount of extra work. Perhaps it would be better to say that it *should* involve extra work. There is no excuse for any car to be frozen up, even when the thermometer's heart is in its boots ; a frost-bound engine implies pure carelessness and laziness on the part of its owner.

Never go to bed on a clear, cold night without first attending to the needs of your car. Uneasy lies the head that owns a radiator full of water when the temperature is at freezing-point, and your head will be no exception to the rule. Sleep will not come your way unless you are a case-hardened criminal. You will toss, and think, and calculate the cost of new radiators until you decide that you cannot afford it. The journey downstairs will be unpleasant. A quarter of an hour or so in a stone garage when your attire is scanty—to put it mildly—will be more unpleasant still, and before your job is finished you will wish that you had never been born ; but you will crawl back to bed a wiser, if a colder, woman.

Every possible precaution must be taken beforehand, and an engine, whether a 6-cylinder or a "Skootamota" single-cylinder, needs petting like a spoilt invalid. There are two ways of coping with the situation :

1. By using an anti-freezing mixture ;
2. By removing the source of the trouble—of course, I mean the water, not the frost.

The most usual form of anti-freezing mixture is made by adding methylated spirit to the water in the radiator. One part of methylated to five parts of water will usually answer the purpose, although in a very hard frost it is safer to allow one part of methylated to three parts of water. This method is certainly the simpler of the two, therefore it has pitfalls, the

chief of which is that the spirit evaporates very rapidly and must be renewed constantly to ensure that the correct mixture is retained. Methylated spirit also leaves a deposit which will in time choke the radiator tubes and rot the water-joints.

On account of these disadvantages, and also because of the expense involved, the majority of motor-owners will probably rely on the second method : that of letting all the water out ; and when I say all, I mean *all*—every drop, and not only the radiator-full. Water-jackets and water-pipes have miserly tendencies which, except in the case of certain

cars where taps are provided for the purpose, can only be thwarted in one way : the engine must be started up and left running for about three minutes after the radiator is empty. This pumps away any remaining water, and every part is left perfectly dry.

BONNET-COVERS AND SOCIALISM.

Before leaving the car for the night, in fact at any time when the engine is not running, it is advisable to tuck some warm covering



MISS PEGGY KURTON AND A SKOOTAMOTA.

over the bonnet and radiator ; but if you use one of those waterproof rugs lined with an imitation leopard for the purpose, take heed and care. Don't, in the agitation of the moment, put it on rubber side downwards when the engine is hot. Heat softens the rubber, which sticks to the paint, and when you remove the cover you will find that a great deal of the paint has taken root on the rug and the remainder of the rubber is disfiguring the bonnet.

One more word of warning to those who belong to a large family. Provide yourself with a piece of wood on which is painted the mystic phrase, "NO WATER," and hang this round the car's neck. Even the most rigidly conservative families hold socialistic views where cars are concerned. Nothing will prevent them from using your car if they want to ; so safeguard it by making it as fool-proof as possible.

THE LADY OF THE LAMP.

Next on the list of winter's trials comes the darkness, which makes trustworthy lamps essential. If you are the proud possessor of an electric lighting set your cares are comparatively few, provided that you keep a watchful eye on the batteries. Electricity is not, however, infallible, and you will be well advised if you conceal a set of oil lamps and a bottle of paraffin in an inconspicuous tool-box.

A good object lesson on this point is provided by a certain firm of motor manufacturers. Their car is built with no visible means of starting the engine by hand. The story goes that the engine-electric starter is absolutely reliable ; therefore there is no need to resort to the archaic method of cranking. Theoretically this is "all right," but the manufacturer is not quite such a fool as he looks. Somewhere in the innermost depths of that car he has secreted a starting-handle, "just in case."

Motor-owners who cannot afford or cannot obtain an electric lighting set must rely on acetylene lamps to lighten their darkness, and they should give little cause for worry if the internal organs of the generator are kept thoroughly clean. Every vestige of the carbide slush should be removed and every pipe blown clear before fresh carbide is put in.

P.S.—It is inadvisable to perform this job in the kitchen or sitting-room unless the worker wishes for a speedy journey to a better land.

TRUSTING TO LUCK.

Above all, never trust to luck so far as lamps are concerned. Luck is a gamble, with heavy odds and the police against you. You may

obtain your light from electricity, carbide and water, or humble oil, but you should always be able to rely on it by preparing everything beforehand.

In fact, motorists would do well to remember the Boy Scout motto : " Be Prepared." A great deal of time and temper could be saved by a little more forethought. For instance, some people make a habit of throwing all their equipment higgledy-piggledy into the nearest available place on their cars. When they have trouble on the road chaos is the order of the day, for every conceivable implement is turned out in the wild search for the necessary tools. To quote Army orders : " This must not occur." Every tool should have its appointed place, and it is a good tip to keep a small shifting spanner and a screwdriver handy, for a great many roadside repairs can be tackled with their united assistance.

TABLEAU !

Talking of roadside troubles reminds me of an incident which occurred in the struggle to overcome the motorist's greatest nightmare—tyre trouble.

An unpuncturable tyre of a foreign make was sent to a certain R.A.S.C. company to be tested. The colonel in an unusual fit of generosity allowed his own particular car to be used for the purpose. In due course the tyre was fitted, and was taken out to be given a real gruelling.

Some time afterwards a perspiring but pleased subaltern returned with the car and drove into the company's yard. The radiator was steaming and the tyres, including the unpuncturable specimen, were nearly red-hot, but perfectly sound in wind and limb. A glorious company of " Brass Hats " held a committee meeting, and finally retired with gratified expressions.

About four hours later the colonel sent for his car. He was an irate gentleman, and his woman driver doubled up—in the Army sense, not literally. Imagine her horror when she discovered that her car boasted one front wheel minus any tyre or tube ! The company was in a ferment, even sergeant-majors hurried, and they positively ran when the colonel appeared on the scene to ascertain the cause of the delay.

At last a subaltern had a brain-wave. Much to everybody's surprise he prostrated himself flat on his face and glued his nose to the ground. He arose triumphant with a handful of small pieces of hard black material, the cremated remains of the unpuncturable tyre, which had burst itself with pride through having survived its first and only test !

B.D.

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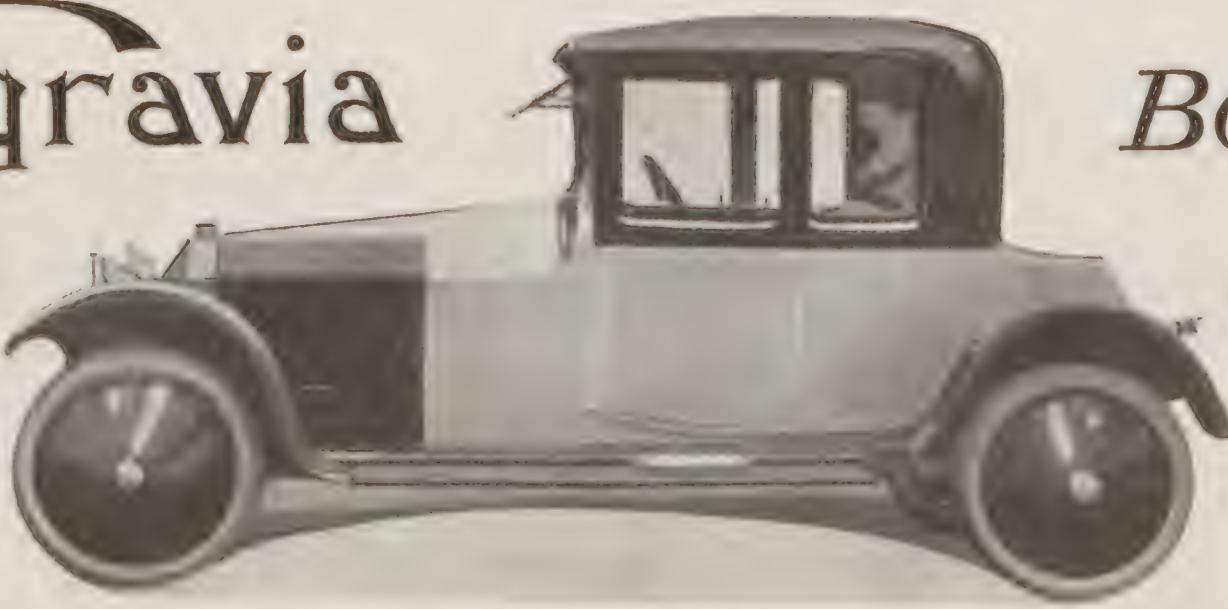


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AUTUMN PHOTOGRAPHY.

By CHRISTOPHER WENLOCK.

THREE is no close season for the enthusiastic photographer, as there is none for the motorist who motors for the delight of motoring ; nor are there difficulties that may easily depress his ardour. Obstacles in his path only inspire to larger endeavour, and larger endeavour means victory worth the winning.

As the rising hills awaken in the motorist's heart the ambition to climb, and the realisation of the ambition is rewarded with superb distances and wide visions, so do greater difficulties of light and tone urge the photographer to overcome, and in the process wonders of unexpected beauty are wrought on the plate.

When the year runs on to the fall and the air bears the first suggestiveness of coming chill, one is conscious of a loss of that brilliant light that demanded no lengthy delay, but gave a perfect image with delightful detail in answer to an instantaneous exposure ; but in the days of autumn the hours of strong actinic light are few and linger round the centre of the day, while even these have not the glare of the mid-year months. There is a mellower tone in the rays of the sun ; yellow and gold and red are more pronounced ; and yellow and gold and red fight shy of the ordinary plate, and failures are often the cause of much surprise.

Twilight gathers early and the hours of day-

light travelling are curtailed, and out of this diminishing span of light the photographer must expend a larger measure on the longer exposure. So the task grows harder and the camera is less often used, and choice visions slip by uncaptured, to great loss in the after time.

On the other hand, these autumn views, by reason of their higher cost, possess a greater value. And autumn has opportunities which are essentially her own.

In the dying year colour reigns supreme. The leaves upon the trees are inwrought with gold and crimson, every tone of brown runs riot in the hedge, purple heather flames along the moors, and the failing bracken adds unwonted

glory to hill and wood.

Even with the ordinary plate the strong contrast of colour-tones gives the picture an added emphasis quite distinct from that produced when the level shades of summer lie on field and forest ; and if the orthochromatic plate be used, even without the colour screen, its sensitivity to yellows and browns will yield delightful results ; but with the



YELLOW BRACKEN IN THE FOREST.



AUTUMN IN THE WOODS.

colour screen the whole range of autumn tints is reproduced with remarkable accuracy and a picture of great beauty is achieved.

The motorist who aspires to colour-photography finds his choicest opportunity in the fall of the year ; and the photography of the woods

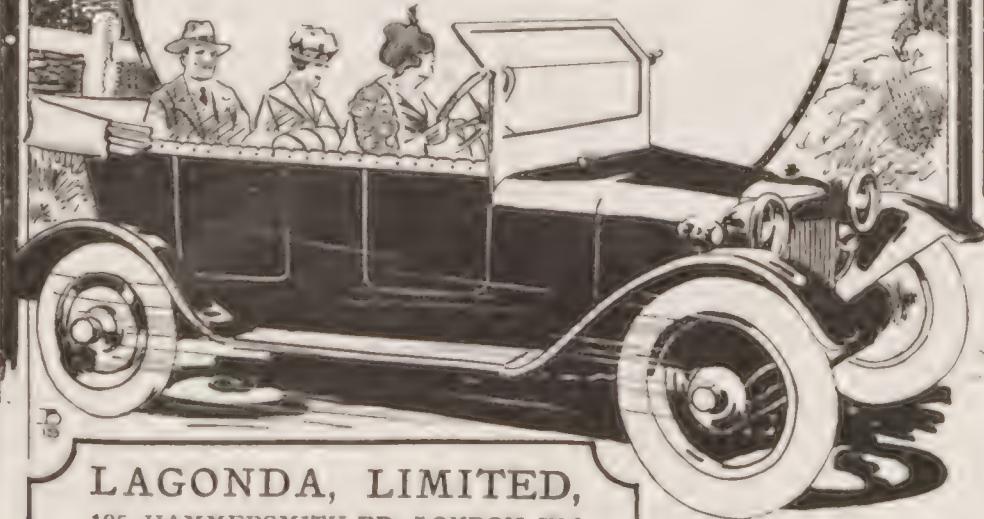
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"I put your covers on my Rolls-Royce Ambulance without doing anything to the springs, and left them to automatically grease-up themselves, which they did, and after a little while the springs regained their normal elasticity and have retained same."

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in late autumn, with their amazing colour, is a thing to be infinitely prized.

Following the track of the country lanes the motorist is confronted again and again with scenes of almost startling brilliance and dazzling colour, and it is worth something to be able to make these visions lasting companions.

Many hesitate to attempt colour-photography because of its somewhat complicated processes or its expense; many again hold back because the finished picture remains upon the glass and cannot be transferred to paper, and these are certainly hindrances, disabilities which one hopes will one day be fully overcome.

Should the motorist have the use of a lime-light lantern he will find no slides more beautifully effective than those produced by the colour process, and of them all few that will be superior or evoke more genuine delight than those taken in the woodlands or on the moors when Nature has clothed herself in her richest autumn tints.

CHRISTOPHER WENLOCK.

The De Martis Battery.

THE de Martis battery is not exactly new, but it now bids fair to come into its own for the first time. Its constructive characteristics lie in the use of a special form of plate, and a secret paste for the positive electrode. Its functional characteristics are somewhat startling. Capacity for capacity, it is much lighter than any other cell on the market; it may be left unattended for years without suffering damage, either charged or empty. It may be fully charged at a stupendous rate—the ordinary battery must not be charged at a rate exceeding about one-fifth of its capacity, *i.e.*, a 20 amp. accumulator must not have current fed into it at a higher rate than 4 amps. per hour, and must not be discharged at a rate exceeding one-fourth of its total capacity. The de Martis battery may be charged at a rate exceeding its total capacity by two or three hundred per cent., and may be short-circuited with impunity.

Expressing this in terms of actual use on a car it means that if a battery is completely exhausted on a run it is not damaged, whereas one of the ordinary type would be ruined, and that, should the battery give out before the journey is completed, it may be recharged in whatever time can be spared for the process. A 140 amp. battery may be charged to within 60 per cent. of its total capacity in less than ten minutes!

Some extensive laboratory tests of the battery at the hands of independent expert investigators have given extraordinary results, and a battery has been shown that, after lying neglected in a yacht for six years, was charged up and immediately gave its rated output. Competitive tests with other batteries, all of first-class and well-known

makes, have shown an enormous superiority for the de Martis, and when these results are considered in connection with the extra lightness and cheapness of the battery it should play an important part in earning for electric traction the popularity that has long lain just beyond its grasp.

Ready for Delivery.

AMID the long-continued dearth of new cars, it is refreshing to discover a firm that has not only got the goods to show, but can also offer immediate delivery. Such oases in the desert are few, and the fact that the car in question is an entirely new one, and not a 1919-1920 model of an old make, renders the discovery even more pleasing.

This new car, the 11·9 h.p. Varley-Woods, is a London-built production of H. S. Motors, Ltd. As will be seen from the accompanying illustration, the car with its standard body is smart in appearance, while the high nickel radiator and long aluminium bonnet give an agreeable suggestion of power.

Under this long bonnet is concealed an 11·9 h.p., four-cylinder Dorman engine of 69 mm. bore, and a stroke of 120 mm. This engine, which has overhead valves and a cylinder head which can be detached by simply undoing two nuts, develops 22 b.h.p. at 1,500 revolutions per minute and 25 b.h.p. at 2,000 r.p.m. The cooling system is to all intents and purposes thermo-syphon, assisted by a simple type of water-pump placed at the front of the engine. Special attention is paid to the cooling of the valve-seats.

For the electric engine-starter and the lighting system the Brolt method is employed, the dynamo lighting equipment consisting of two head lamps, two torpedo type side



THE 11·9 H.P. VARLEY-WOODS.

lamps, and a tail lamp. As regards petrol consumption, it is claimed that the Varley-Woods will average approximately 30 miles to the gallon. The feed is on the Autovac system.

Special care has been taken in the matter of suspension to provide the maximum of smoothness of running under all road conditions. The rear springs are of the 4' ft. cantilever variety, and semi-elliptic springs will be found in front.

Four forward speeds are operated through an accessible and neat gate, while the two sets of expanding brakes are worked on the rear wheels. A Watford high-tension magneto and the latest type of Zenith carburetter are employed. The wheel base is 10 ft., and the track 4 ft. 1 in. When one considers the excellent work which has been expended on the Varley-Woods car, and the present state of the British trade with regard to labour and obtaining materials, £660 does not seem an excessive price.

IS IT TOO LATE?

A Vicious Circle from which we Must Escape.

CHARITY, they say, covereth a multitude of sins, but it covers no more sins than doth the term standardisation cover a variety of automobile idiosyncrasies. Why this displeasing uniformity which, carried too far, will gradually sap the individuality of the car? Standardisation, of course, is the cause of it. Why cannot one obtain a light motor-car of British manufacture at the same reasonable figure as that charged by American makers—one is, of course, revisualising pre-war conditions? Because the American manufacturer goes in for quantity production on a scale undreamt of on this side—standardisation, again, is the reason. And, finally, why, since there is this magic virtue in the term, cannot we standardise our cars, or some of our cars, and so meet the American manufacturer on equal terms? The stereotyped reply is: "Because our output is not large enough."

So we arrive at the position that we cannot have a large output because we do not standardise, and we cannot have standardisation because our output is too small. A vicious circle, surely; a whirlpool towards the vortex of which the British motor industry has been imperceptibly circling for twenty-odd years; the whirligig of fate, to which too long it has been content to trust its fortunes.

World automobile trade conditions generally have reached a point at which *laissez faire* is worn out as a policy—a point at which our industry must escape on a tangent from that vicious circle, must strike out against the spirals and away from the vortex of the whirlpool, must take advantage of centrifugal action and get itself thrown off the whirligig. It will mean a struggle, it may mean a nasty bump, but the whole future of the industry depends upon throwing over all preconceived notions of car making and selling and getting down to hard business. More than a national outlook is required, we must cultivate an imperial outlook.

Two questions naturally arise: Is there a tangential road by which we may leave that vicious circle? Is it too late? The first is easy to answer, the second more difficult; but we have it on good authority that "it is never too late to mend," although it may not be possible now to realise all the original potentialities of the British industry.

Yes, there is a tangent upon which we may drive to safety—in fact, a number of tangents—so obvious that one is almost ashamed to put it forward as a serious solution of the difficulty. Yet—

WHAT OF OUR COLONIES?

Have we ever regarded the Colonies as a market for our products? I know that one or two makers have endeavoured to induce a colonial trade, but the industry as a whole has made not the slightest effort towards this end.

And yet nothing is more natural than that the British manufacturer should calculate to supply the requirements of his countrymen overseas; nothing more natural than that the Briton abroad, knowing the inherent worth of the British article, and having, beside, a wonderful fund of patriotism upon which to draw, should look to the home manufacturer to meet his requirements. In fact, if the Colonies are not available, or, being available, are not

utilised for the expansion of the trade of the Homeland, "what's the good of 'em to us?" They might just as well be friendly but entirely distinct and separate countries; and even then one would imagine that Britain would wish to figure largely in their import statistics.

I saw the remark somewhere recently that the motor-car did not meet an existing demand, but created one for itself. Well, it created a demand in Sydney, Montreal, Calcutta, and Cape Town just as much as it did in London, Edinburgh, Dublin, and Cardiff. The people in those cities had to have motor-cars, and they have them. What have they got, though—a majority of British cars? It makes me tired to have to say that they have not, that the Americans have the markets which by every right we ought to hold. The markets were not even captured after severe competition. They were vacant, and the Americans merely occupied them.

CUT IT Now!

Those markets are growing all the time. Are we going to leave the present peaceful occupants to continue their occupation and to expand with the expansion of the demand; or are we going to endeavour to steal a little of the growing trade? Remember, the absence of belligerency in the original occupation was only due to the lack of necessity for it. If we cut in now we shall have a hard fight to make good. And why not? They are our markets, and it was only owing to our own lack of foresight, supineness, call it what you will, that we did not use them in the first place. Surely it is worth while to make the effort; but it must be made now or not at all. There is the opportunity; have we the pluck?

Not only from a patriotic point of view is it desirable that the British industry should wake up and endeavour to supply the Colonies with the type of inexpensive car which they require, but equally from an individual and purely selfish standpoint. The demand is by no means limited to the overseas markets, and for a number of reasons, quite apart from patriotism, the British motorist would do much better for himself if he were able to procure a home-produced car of the type in question. If, therefore, the industry is responsive to this *reveille*, it means that a very considerable home demand will be satisfied at the same time that outraged patriotism is placated. The two aspects of the question, however, are indissolubly bound together. The home demand cannot be met unless the Colonial problem is tackled, and tackled successfully; but if this result be achieved, it necessarily follows that a surplus will be available for home consumption.

Words cannot do justice to the absolute, vital importance of the Colonies to the motor industry, and up to the present, speaking generally, we have given their requirements less consideration than that which is given to the needs of a solitary individual motorist at home.

I do not think that there is any concerted plan on the part of members of the American trade to capture British overseas markets especially. They simply regard the world as their kingdom, and make the best possible use of it; but if we mean to get our foot in on our own ground it is just as well that we should know what we are up against, and in this connection I regard some of the re-

marks which I have come across in the American motor press as significant.

AMERICA AND THE WEST INDIES.

There is an article in one journal entitled, "Why our Exports to West Indies Should Continue to Grow," in which the writer states that the trade in the islands is in its infancy, with particular reference to lorries and light cars. I am not worrying about capturing American trade in American colonies, so we will leave alone a series of very interesting statistics relating to Cuba. The following figures, showing imports of American cars, parts, and tyres, to our possessions, however, are significant :—

Colonies.	Commercial Cars.		Touring Cars.		Motor Cycles.		Parts.		Tyres.		Total
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	
1912-13.											
Barbadoes ..	—	—	7	1,195	—	—	1,011	918	—	3,124	
Jamaica ..	4	1,847	62	11,826	2	100	5,071	6,000	—	24,844	
Trinidad & Tobago ..	—	—	43	7,980	—	—	1,824	3,273	—	13,077	
Other British ..	—	—	7	1,343	—	—	231	374	—	1,948	
1916-17.											
Barbadoes ..	1	301	121	12,473	11	441	2,892	3,133	—	10,243	
Jamaica ..	6	1,657	335	40,475	32	934	10,971	21,810	—	75,847	
Trinidad & Tobago ..	2	1,144	204	22,403	26	1,064	8,812	9,139	—	42,562	
Other British ..	1	100	124	16,176	10	389	2,574	4,305	—	23,544	
1917-18.											
Barbadoes ..	2	700	58	6,639	14	552	3,018	3,880	—	14,780	
Jamaica ..	70	1,355	236	29,934	30	1,065	13,086	21,819	—	67,259	
Trinidad & Tobago ..	14	3,672	161	20,114	14	490	11,159	21,074	—	56,500	
Other British ..	28	17,983	80	10,002	31	833	4,289	5,198	—	38,395	

Total value 1912-13, £42,993; 1916-17, £161,196; 1917-18, £176,862.

Value in three years, £381,046.

Average price of touring cars, £125 5s.

A GROWING DEMAND.

It is not unnatural that during the years of the war the import of American cars should increase considerably, as shown in the above table, but apparently there is still

a large and growing demand, even in such an out-of-the-way place as Jamaica, and it is pretty obvious that the Americans are getting ready to meet it. It is interesting to note also the low price of the cars imported in the years under review.

Another remark in the same paper brings home the American attitude, and again suggests that they will certainly take advantage of the situation, if we do not—that, in fact, they have their eyes very wide open for opportunities for expansion: "The demands of labour can have but one result, that the increased cost of production will be added to the final cost, and many of the markets that Great Britain enjoyed previous to the war may be lost."

THE MALAY STATES.

Here is another fact: the Chief Secretary to the Government of the Federated Malay States, in his report for 1918, says that in 1914 the United Kingdom exported 512 cars to his territory and the United States (including Canadian Fords) 481. In 1918 the figures were: U.K., 549; U.S.A., 1,945. This makes one think. The Chief Secretary adds:—

"British trade has suffered greatly during the war, and British manufacturers will have to study the needs of the inhabitants of the Malay Peninsula if they desire to secure a fair share of business. There is certain to be an increased demand for motor transport, and it is in this particular line that British makers have not sufficiently studied local wants. The demand is for vehicles not only of a low price, but also inexpensive to maintain, and these qualities are more necessary than elegance"

Is it not time we made a move? Having allowed the growth of a particularly healthy young industry to be stunted past redemption, are we content to sit still and see it frozen out of existence altogether?

R. W. B.

A New Assembled Car.

AMONG the things which, in spite of prejudice, we apparently are bound to accept and recognise as something to be reckoned with, is the "assembled" car.



THE 15·5 H.P THOR.

There is certainly one thing to be said in favour of a vehicle produced from a variety of component parts, and that is that each part, having been produced by a firm

which specialises in the manufacture of that article, should be the best of its kind.

It remains, then, to admit that, provided the components are wisely chosen and well fitted, there is no reason why an assembled car should not be a perfectly practicable and satisfactory vehicle. Anyway, quite a number of such cars are coming on to the market, among them being the 15·5 h.p. Thor, which, with a four-cylinder 79 mm. by 115 mm. engine, electric lighting and starting, a London-built two-seater body, and with the usual ready-for-the-road equipment, sells at £300.

At this price—which, according to pre-war standards of value, is equivalent to £150 to £200 in normal times—it cannot be denied that the Thor is an attractive proposition, and while its 9 ft. 6 in. wheelbase somewhat limits its usefulness to the requirements of a two-seater, modern progress in coach work has made it possible to equip this chassis with a coupé body at an increased cost of only £50.

As cars go nowadays, and particularly having regard to the price of the complete car, the engine is a fairly powerful little unit, and it has an interesting feature in that, with *en bloc* casting, the cylinder head of the block is detachable. The R.A.C. rating is 15·5 h.p.

In the matter of suspension, the Thor car breaks away slightly from standard practice in having quarter elliptic springing in front and cantilever springs at the rear. The self-starter is the Allis Chalmers single unit.



Oldsmobile

THE fine lines of the 25 h.p. Oldsmobile, its splendid finish, and its distinctive coachwork, are only the outward indications of the character that is built into the car. It has power in abundance—the power that dwarfs giant hills, that gives astounding speed when that's desired, and quickness on the get-away. And yet, because of its great flexibility, it will take you idling through congested traffic at a mile or two an hour without the gears requiring constant changing. These things represent but part of the performance of the all-efficient Oldsmobile—the one tremendous success in a light-weight, eight-cylinder car at a moderate price.

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The Editor will be pleased to consider contributions of special interest to the car-owner, provided they are of high quality and in every way suitable to the magazine. Short illustrated articles are preferred, dealing with any aspect of private motoring, either as regards touring or the home management of the car. First-class snapshots of roadside scenes or incidents are particularly desired. All photographs and sketches should be fully titled on the backs and bear the name and address of the sender.

Contributions should be addressed to the Editor of "The Motor-Owner," 33, King Street, Covent Garden, London, W.C.2., and should be accompanied by a stamped, addressed envelope. While every effort will be made to return them if unsuitable, the Editor cannot hold himself responsible in case of loss or damage.

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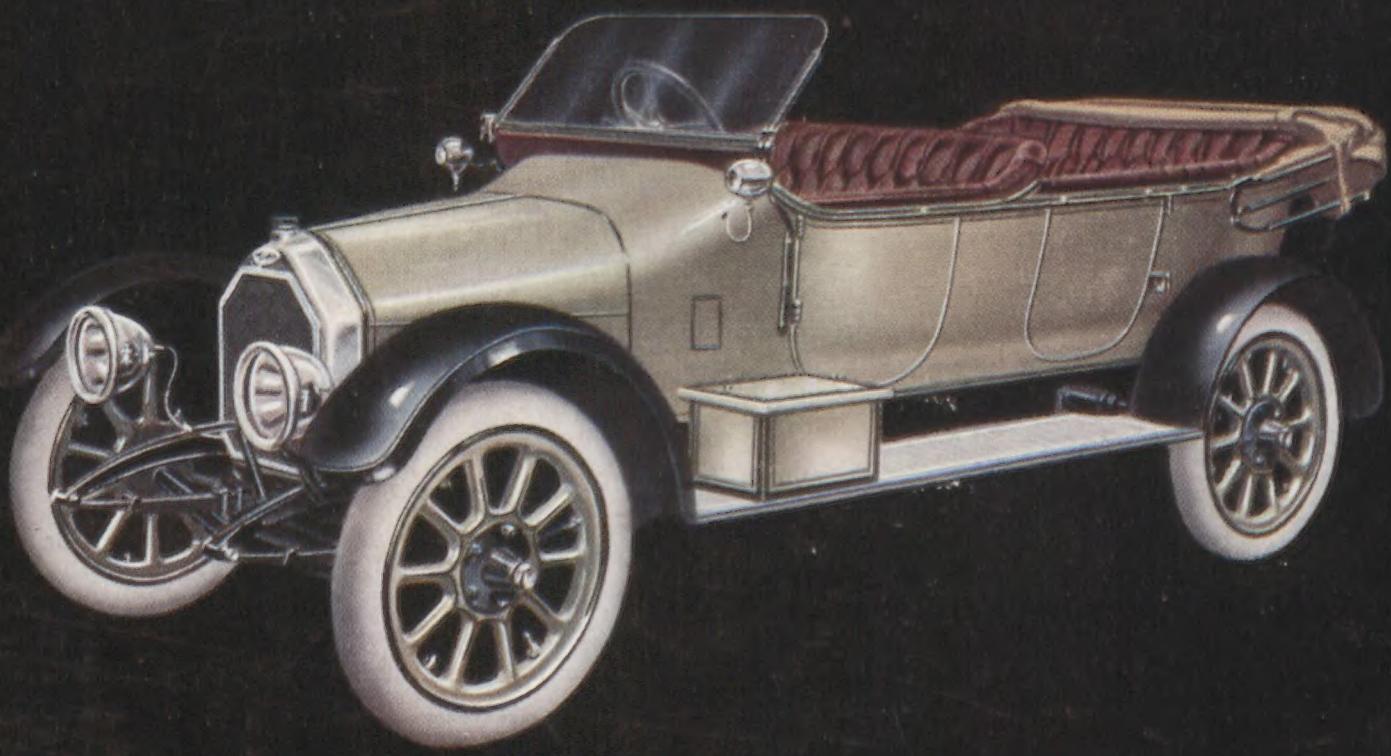
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33, King Street, Covent Garden, London, W.C.2.